PB81-238305

Compilation of Air Pollutant Emission Factors
Highway Mobile Sources

(U.S.) Environmental Protection Agency
Ann Arbor, MI

Mar 81

U.S. Department of Commerce
National Technical Information Service
NTIS.

PB81-238305

EPA 460/3-81-005

COMPILATION OF AIR POLLUTANT EMISSION FACTORS:

HIGHWAY MOBILE SOURCES

March 1981

U. S. Environmental Protection Agency
Office of Air, Noise, and Radiation
Office of Mobile Source Air Pollution Control
Emission Control Technology Division
Test and Evaluation Branch
2565 Plymouth Road
Ann Arbor, Michigan 48105

PRODUCT OF:
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

DISCLAIMER

Within this document there are references to a detailed background document, Derivation of the Highway Mobile Source Emission Factors, April 1981 (EPA 460/3-81-007). This background document was not available at the time this AP-42 document was released. Once this background document becomes available, the EPA Regional Offices will be contacted and copies will be available through the National Technical Information Service in Springfield, Virginia.

NOTICE

THIS DOCUMENT HAS BEEN REPRODUCED FROM THE BEST COPY FURNISHED US BY THE SPONSORING AGENCY. ALTHOUGH IT IS RECOGNIZED THAT CERTAIN PORTIONS ARE ILLEGIBLE, IT IS BEING RELEASED IN THE INTEREST OF MAKING AVAILABLE AS MUCH INFORMATION AS POSSIBLE.

TECHNICAL REPORT DATA
(Please read instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA 460/3-81-005		PB81 238305

4. TITLE AND SUBTITLE	5. REPORT DATE
Compilation of Air Pollutant Emission Factors: Highway Mobile Sources	March 1981
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Environmental Protection Agency Office of Mobile Source Air Pollution Control Test and Evaluation Branch Ann Arbor, MI 48105	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency Office of Mobile Source Air Pollution Control Test and Evaluation Branch Ann Arbor, MI 48105	13. TYPE OF REPORT AND PERIOD COVERED Final
	14. SPONSORING AGENCY CODE

15. SUPPLEMENTARY NOTES

16. ABSTRACT

This is the Compilation of Air Pollutant Emission Factors: Highway Mobile Sources, March 1981 (EPA 460/3-81-005) document. It summarizes the emission factors and calculation methodologies used in the MOBILE2 computer program. The emission factors are presented for eight individual vehicle types in three regions of the country. This document describes the basic test procedures used to collect the hydrocarbon (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) emissions and the generalized emission factors calculation equations. The emissions presented in this document are the basic exhaust emissions, the crankcase and evaporative HC emissions, January 1 basic exhaust emission levels, and idle exhaust emissions. Further, non-methane HC fractions and particulates are presented. In addition to the standard test procedure emissions, emission correction factors are presented to adjust the emissions for various ambient and vehicle usage conditions such as speed, temperature, and humidity for NOx.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Motor Vehicles Automobiles Exhaust Emissions Computer Programs	Emission Factors	

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report)	21. NO. OF PAGES
Release Unlimited	Unclassified	407
	20. SECURITY CLASS (This page)	22. PRICE
	Unclassified	

EPA Form 2220-1 (9-73)

ABSTRACT

This is the Compilation of Air Pollutant Emission Factors: Highway Mobile Sources, March 1981 (EPA 460/3-81-005) document. It summarizes the emission factors and calculation methodologies used in the MOBILE2 computer program. The emission factors are presented for eight individual vehicle types in three regions of the country. This document describes the basic test procedures used to collect the hydrocarbon (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) emissions and the generalized emission factors calculation equations. The emissions presented in this document are the basic exhaust emissions, the crankcase and evaporative HC emissions, January 1 basic exhaust emission levels, and idle exhaust emissions. Further, non-methane HC fractions and particulates are presented. In addition to the standard test procedure emissions, emission correction factors are presented to adjust the emissions for various ambient and vehicle usage conditions such as speed, temperature, and humidity for NOX.

Requests for copies of AP-42 should be directed to the following:

The National Technical Information Service (NTIS)
U. S. Department of Commerce
Springfield, Virginia 22161
(703) 487-4650

Questions concerning AP-42 should be directed to the following:

Office of Mobile Source Air Pollution Control
Emission Control Technology Division
Test and Evaluation Branch
2565 Plymouth Road
Ann Arbor, MI 48105
Attn: AP-42
Telephone: (313) 668-4365

TABLE OF CONTENTS

INTRODUCTION

A. PURPOSE xi

B. MAJOR DIFFERENCES FROM 1978 MSEF xi

C. DOCUMENT ORGANIZATION xxii

D. VEHICLE INSPECTION AND MAINTENANCE PROGRAM xxiii

E. REACTIVE VS. NON-REACTIVE HYDROCARBON EMISSIONS xxiii

F. PARTICULATE EMISSIONS xxv

PART ONE -- LOW ALTITUDE NON-CALIFORNIA

CHAPTER 1. LIGHT DUTY GASOLINE POWERED VEHICLES

1.A INTRODUCTION 1

1.A.1 Test Procedure
1.A.2 General Emissions Calculation Equations

1.B EMISSIONS 3

1.B.1 Basic Exhaust Emission Rates
1.B.2 Crankcase and Evaporative HC Emission Levels
1.B.3 January 1 Basic Exhaust Emission Levels
1.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

1.C TRAVEL WEIGHTING FRACTIONS 5

1.C.1 Fleet Annual Mileage Accumulation Rate Distribution
1.C.2 Model Year Registration Distribution
1.C.3 Fleet Sales Distribution

1.D EMISSION CORRECTION FACTORS 6

1.D.1 Speed Correction Factor
1.D.2 Emission Temperature Correction Factor
1.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor
1.D.4 Air Conditioning Correction Factor
1.D.5 Extra Load Correction Factor
1.D.6 Trailer Towing Correction Factor
1.D.7 NOx Humidity Correction Factor

CHAPTER 2. LIGHT DUTY GASOLINE POWERED TRUCKS I

2.A INTRODUCTION 12

2.A.1 Test Procedure
2.A.2 General Emissions Calculation Equations

2.B EMISSIONS 12

2.B.1 Basic Exhaust Emission Rates
2.B.2 Crankcase and Evaporative HC Emission Levels
2.B.3 January 1 Basic Exhaust Emission Levels
2.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

2.C TRAVEL WEIGHTING FRACTIONS 13

2.D EMISSION CORRECTION FACTORS 13

2.D.1 Speed Correction Factor
2.D.2 Emission Temperature Correction Factor
2.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor
2.D.4 Air Conditioning Correction Factor
2.D.5 Extra Load Correction Factor
2.D.6 Trailer Towing Correction Factor
2.D.7 NOx Humidity Correction Factor

CHAPTER 3. LIGHT DUTY GASOLINE POWERED TRUCKS II

3.A INTRODUCTION 16

3.A.1 Test Procedure
3.A.2 General Emissions Calculation Equations

3.B EMISSIONS 16

3.B.1 Basic Exhaust Emission Rates
3.B.2 Crankcase and Evaporative HC Emission Levels
3.B.3 January 1 Basic Exhaust Emission Levels
3.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

3.C TRAVEL WEIGHTING FRACTIONS 17

3.D EMISSION CORRECTION FACTORS 17

3.D.1 Speed Correction Factor
3.D.2 Emission Temperature Correction Factor
3.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor
3.D.4 Air Conditioning Correction Factor
3.D.5 Extra Load Correction Factor
3.D.6 Trailer Towing Correction Factor
3.D.7 NOx Humidity Correction Factor

CHAPTER 4. HEAVY DUTY GASOLINE POWERED VEHICLES

4.A INTRODUCTION 20

4.A.1 Test Procedure
4.A.2 General Emissions Calculation Equations

4.B EMISSIONS 21

4.B.1 Basic Exhaust Emission Rates
4.B.2 Crankcase and Evaporative HC Emission Levels
4.B.3 January 1 Basic Exhaust Emission Levels
4.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

4.C TRAVEL WEIGHTING FRACTIONS 22

4.D EMISSION CORRECTION FACTORS 23

4.D.1 Speed Correction Factor
4.D.2 Emission Temperature Correction Factor

CHAPTER 5. LIGHT DUTY DIESEL POWERED VEHICLES

5.A INTRODUCTION 25

5.A.1 Test Procedure
5.A.2 General Emissions Calculation Equations

5.B EMISSIONS 26

5.B.1 Basic Exhaust Emission Rates
5.B.2 Crankcase and Evaporative HC Emission Levels
5.B.3 January 1 Basic Exhaust Emission Levels
5.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

5.C TRAVEL WEIGHTING FRACTIONS 27

5.D EMISSION CORRECTION FACTORS 27

5.D.1 Speed Correction Factor
5.D.2 Emission Temperature Correction Factor
5.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor

CHAPTER 6. LIGHT DUTY DIESEL POWERED TRUCKS

6.A INTRODUCTION 29

6.A.1 Test Procedure
6.A.2 General Emissions Calculation Equations

6.B EMISSIONS 29

6.B.1 Basic Exhaust Emission Rates
6.B.2 Crankcase and Evaporative HC Emission Levels
6.B.3 January 1 Basic Exhaust Emission Levels
6.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

6.C TRAVEL WEIGHTING FRACTIONS 30

6.D EMISSION CORRECTION FACTORS 30

6.D.1 Speed Correction Factor
6.D.2 Emission Temperature Correction Factor
6.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor

CHAPTER 7. HEAVY DUTY DIESEL POWERED VEHICLES

7.A INTRODUCTION 32

7.A.1 Test Procedure
7.A.2 General Emissions Calculation Equations

7.B EMISSIONS 33

7.B.1 Basic Exhaust Emission Rates
7.B.2 Crankcase and Evaporative HC Emission Levels
7.B.3 January 1 Basic Exhaust Emission Levels
7.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

7.C TRAVEL WEIGHTING FRACTIONS 34

7.D EMISSION CORRECTION FACTORS 34

7.D.1 Speed Correction Factor
7.D.2 Emission Temperature Correction Factor

CHAPTER 8. MOTORCYCLES

8.A INTRODUCTION 36

8.A.1 Test Procedure
8.A.2 General Emissions Calculation Equations

8.B EMISSIONS 37

8.B.1 Basic Exhaust Emission Rates
8.B.2 Crankcase and Evaporative HC Emission Levels
8.B.3 January 1 Basic Exhaust Emission Levels
8.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

8.C TRAVEL WEIGHTING FRACTIONS 37

8.D EMISSION CORRECTION FACTORS 38

8.D.1 Speed Correction Factor
8.D.2 Emission Temperature Correction Factor
8.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor
8.D.4 NOx Humidity Correction Factor

PART TWO -- CALIFORNIA

CHAPTER 9. CALIFORNIA HIGHWAY MOBILE SOURCE EMISSION FACTORS 40

PART THREE -- HIGH ALTITUDE NON-CALIFORNIA

CHAPTER 10. HIGH ALTITUDE NON-CALIFORNIA HIGHWAY MOBILE SOURCE EMISSION FACTORS 41

APPENDIX A. NEW VEHICLE EMISSION STANDARDS

A.1 LOW AND HIGH ALTITUDE NON-CALIFORNIA HIGHWAY VEHICLE EMISSION STANDARDS A-1

A.1.1 Light Duty Vehicles
A.1.2 Light Duty Trucks
A.1.3 Heavy Duty Gasoline Powered Engines and Vehicles
A.1.4 Heavy Duty Diesel Powered Engines and Vehicles
A.1.5 Motorcycles

A.2 CALIFORNIA HIGHWAY VEHICLE EMISSION STANDARDS A-9

A.2.1 Light Duty Vehicles
A.2.2 Light Duty Trucks
A.2.3 Light Duty Trucks (Medium Duty Trucks)
A.2.4 Heavy Duty Engines and Vehicles (Diesel and Gasoline Powered)
A.2.5 Motorcycles

APPENDIX B. CALCULATION OF THE VMT MIX B-1

APPENDIX C. CALCULATION PROCEDURE TO COMBINE THE EMISSION RESULTS OF THE TWO LIGHT DUTY GASOLINE POWERED TRUCK CLASSES C-1

APPENDIX D. METHODOLOGY FOR CALCULATING JANUARY 1 TRAVEL WEIGHTING INFORMATION AND FLEET AVERAGE MILEAGE ACCUMULATION

D.1 JANUARY 1 TRAVEL WEIGHTING INFORMATION D-1

D.1.1 January 1 Registration Distribution Transformations
D.1.2 January 1 Annual Rate of Mileage Accrual for the Fleet

D.2 JANUARY 1 FLEET AVERAGE MILEAGE ACCUMULATION D-3

APPENDIX E. HIGHWAY MOBILE SOURCE EMISSION FACTOR TABLES E-1

APPENDIX F. SAMPLE CALCULATIONS OF MOTOR VEHICLE EMISSIONS

F.1 DATA REQUIREMENTS F-1

F.2 DATA USED TO CALCULATE HC EMISSIONS F-2

F.3 CALCULATION OF EXHAUST EMISSION FACTORS F-2

F.3.1 Basic Exhaust Emission Levels (BERipn)
F.3.2 Travel Weighting Fractions (TFin)
F.3.3 Speed/Temperature/Operating-Mode Correction Factor (Ripstwxn)
F.3.4 Calculated Tailpipe Exhaust Emission Factors
F.3.5 Crankcase and Evaporative HC Emission Levels (CCEVi)
F.3.6 Total HC Emission Factors (BEFnpstwx)

APPENDIX G. NATIONAL AVERAGE EMISSION FACTORS FOR HIGHWAY VEHICLES ... G-1

INTRODUCTION

This document officially revises all previous highway mobile source emission factors (AP-42) documents. This document includes information on particulate emissions, and diesel powered vehicle and truck emission factors. Further, this document will be periodically revised as the emissions and in-use vehicle operational characteristics vary from those presented. This document also summarizes the detailed background document which describes the data and derivation process for all the emission factors contained herein. As such, the only specific reference for this document is as follows:

> Derivation of the Highway Mobile Source Emission Factors, April 1981, EPA 460/3-81-007.

A. PURPOSE

This document was generated to present more recent emission factor information for highway mobile sources. As such, the March 1978 Mobile Source Emission Factors: For Low-Altitude Areas Only, EPA-400/9-78-006 and Mobile Source Emission Factors, EPA-400/9-78-005 (MSEF) documents are outdated.

B. MAJOR DIFFERENCES FROM 1978 MSEF

The differences between the emission factors presented in this document and the March, 1978, MSEF documents are numerous. The differences are listed below:

1) Calculation Methodologies

   a) The emission factors are calculated for a January 1 date instead of a July 1 date.
   b) Crankcase and evaporative HC emissions are given by component (crankcase, diurnal, and hot soak losses).
   c) A single speed correction factor is now applied to the entire trip cycle. Previously, a speed correction factor was applied to each of the three operating modes.
   d) Temperature effects are evident on all three pollutants and operating modes as opposed to only HC and CO during the cold start mode.
   e) The use of air conditioning is a function of a discomfort index as opposed to an estimate.
   f) The HDV power to displacement emission correction factor is no longer available.
   g) A different approach is used to estimate the future in-use vehicle fleet emissions.

2) Emission Data

   a) Particulate emissions are included.

b) Emissions for two new vehicle types, LDDV and LDDT, are included.
c) The HDV emissions are based on the transient cycle test procedure.
d) More evaporative HC emission data are included.
e) More basic exhaust emission data for every vehicle type are incorporated, usually for the latest model years and across wider mileage range.
f) Additional idle emissions data for every vehicle type are used.
g) More current travel weighting fraction data (registration mix and mileage accrual) for each vehicle type are used.
h) New non-methane HC data are included.
i) More temperature correction factor data for light duty gasoline powered vehicles are incorporated.
j) New data for air conditioning effects on emissions are utilized.

3) Regulations

The emission rates for the 1981 and later model year vehicles reflect the emission standards and regulations that were projected at the time of this update.

In summary, all of the changes have an impact on the calculated emission factors. To illustrate the differences, nine figures are given. Each figure represents emissions at an average speed of 19.6 mph, a temperature of 75°F, and operating mode VMT percentages of 20.6% for cold start and 27.3% for hot start. The nine figures are grouped into three sets: 1) low altitude non-California, 2) California, and 3) high altitude non-California emissions for January 1 of calendar years 1970 through 1999. The figures represent the emission levels for all eight vehicle types combined. Each set of graphs is composed of the three pollutants: non-methane HC, CO, and NOx. The emissions predicted by the 1978 MSEF methodology were generated by the MOBILE1 computer model. The emissions predicted by the 1981 AP-42 methodology were generated by the MOBILE2 computer model.

Figure 1
Low Altitude Non-California
Non-Methane HC Emissions vs. Calendar Year
For all Eight Vehicle Types Combined

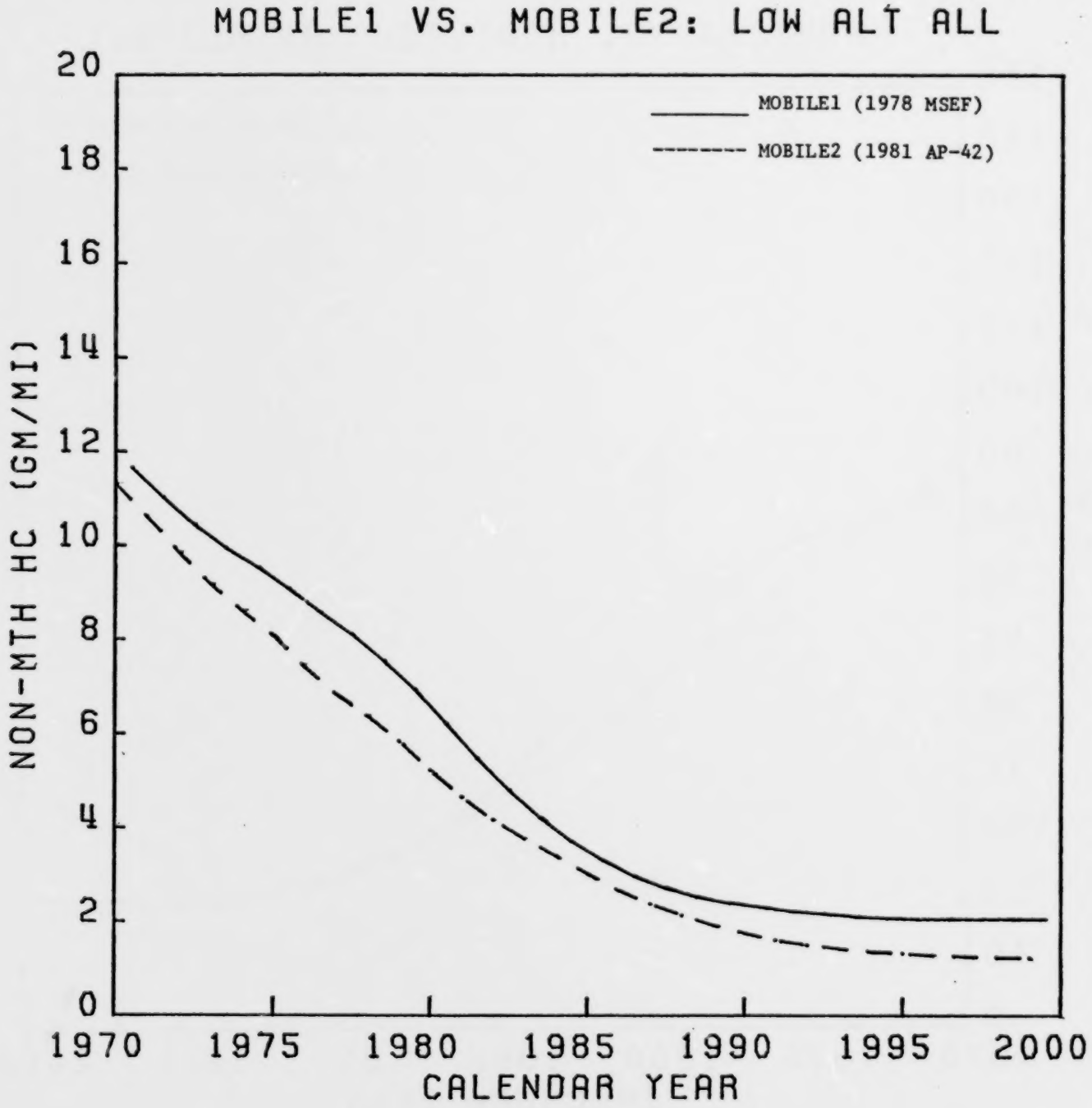


Figure 2
Low Altitude Non-California
CO Emissions vs. Calendar Year
For all Eight Vehicle Types Combined

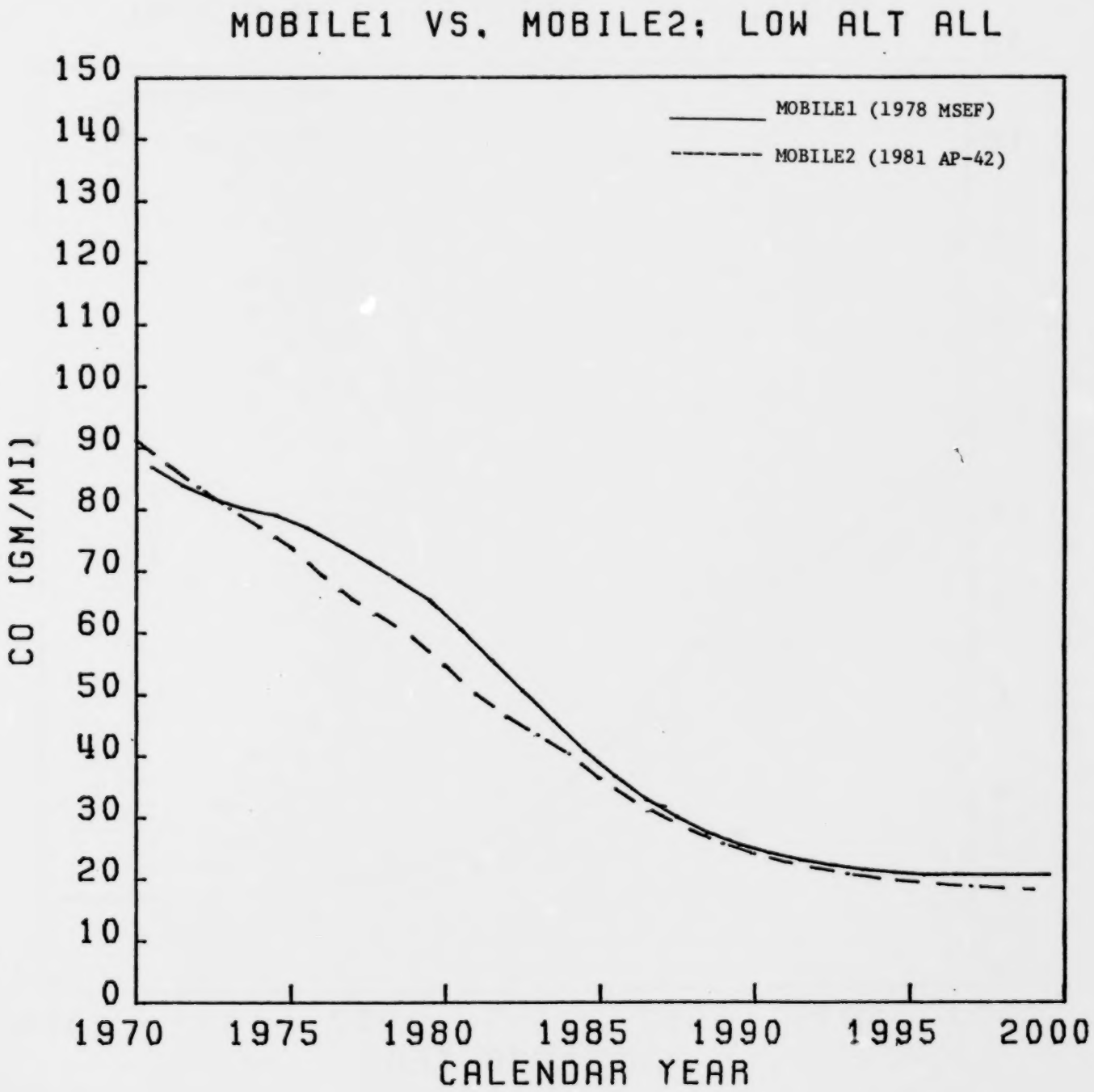


Figure 3
Low Altitude Non-California
NOx Emissions vs. Calendar Year
For all Eight Vehicle Types Combined

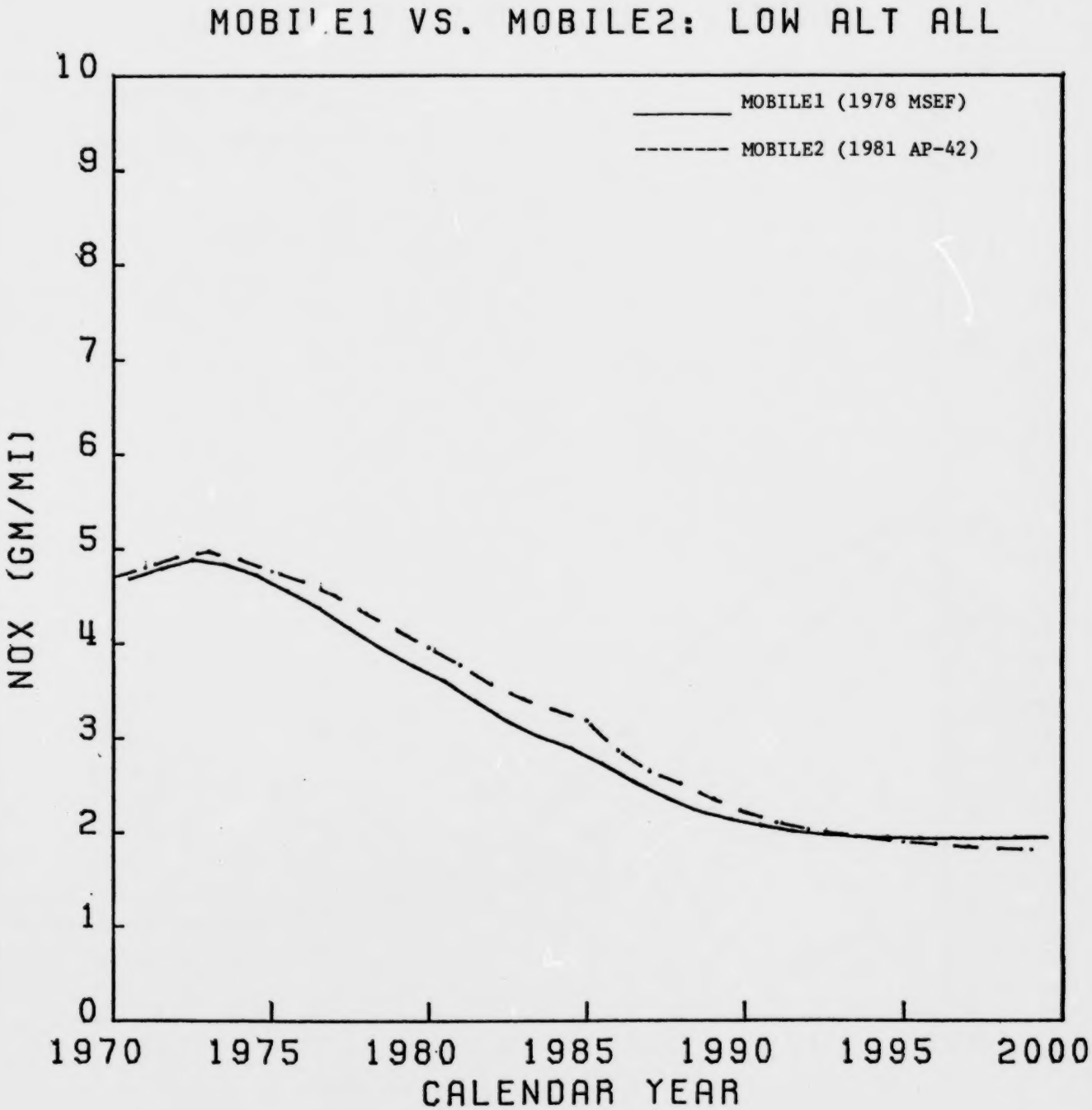


Figure 4
Low Altitude California
Non-Methane HC Emissions vs. Calendar Year
For all Eight Vehicle Types Combined

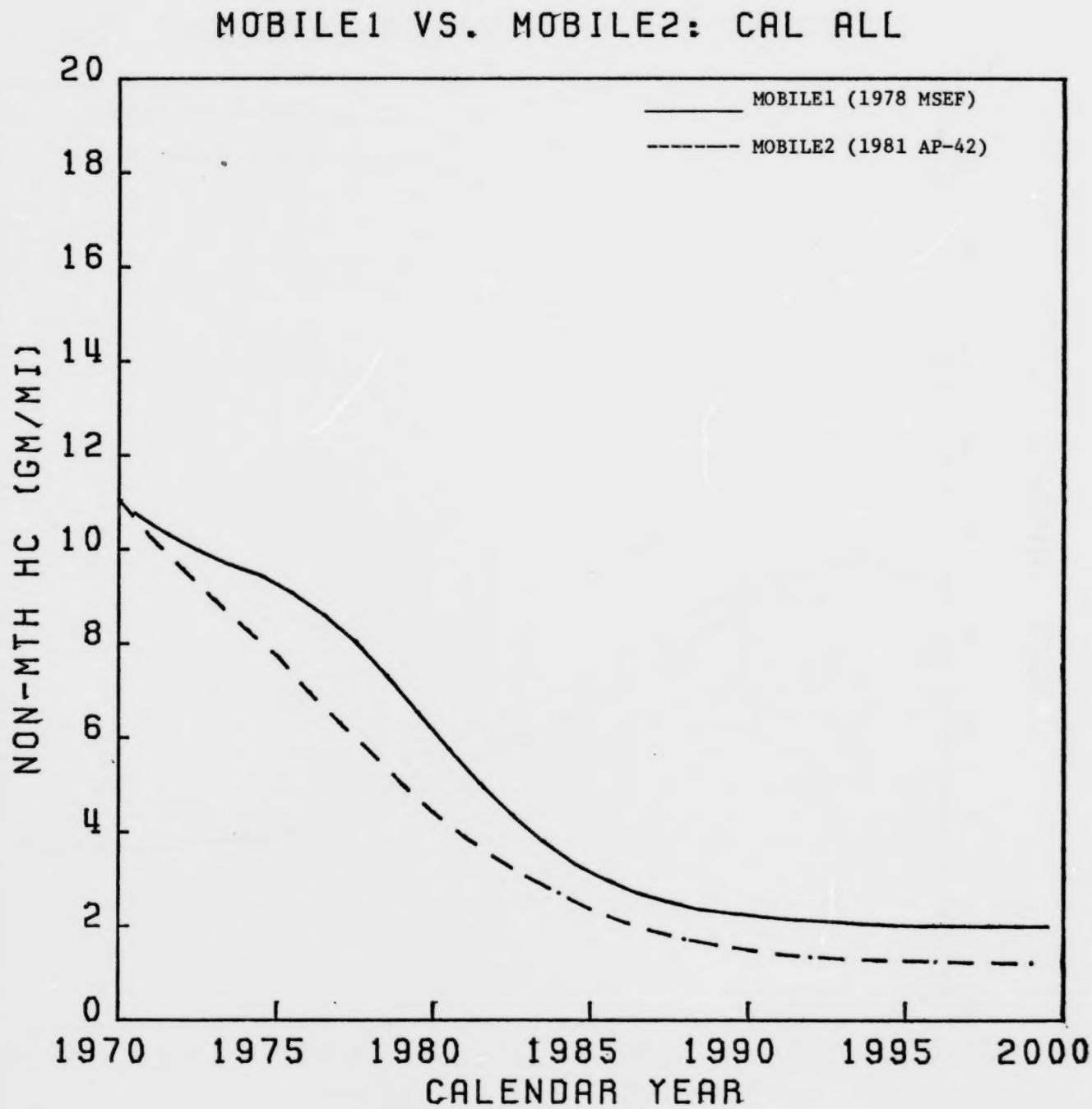


Figure 5
Low Altitude California
CO Emissions vs. Calendar Year
For all Eight Vehicle Types Combined

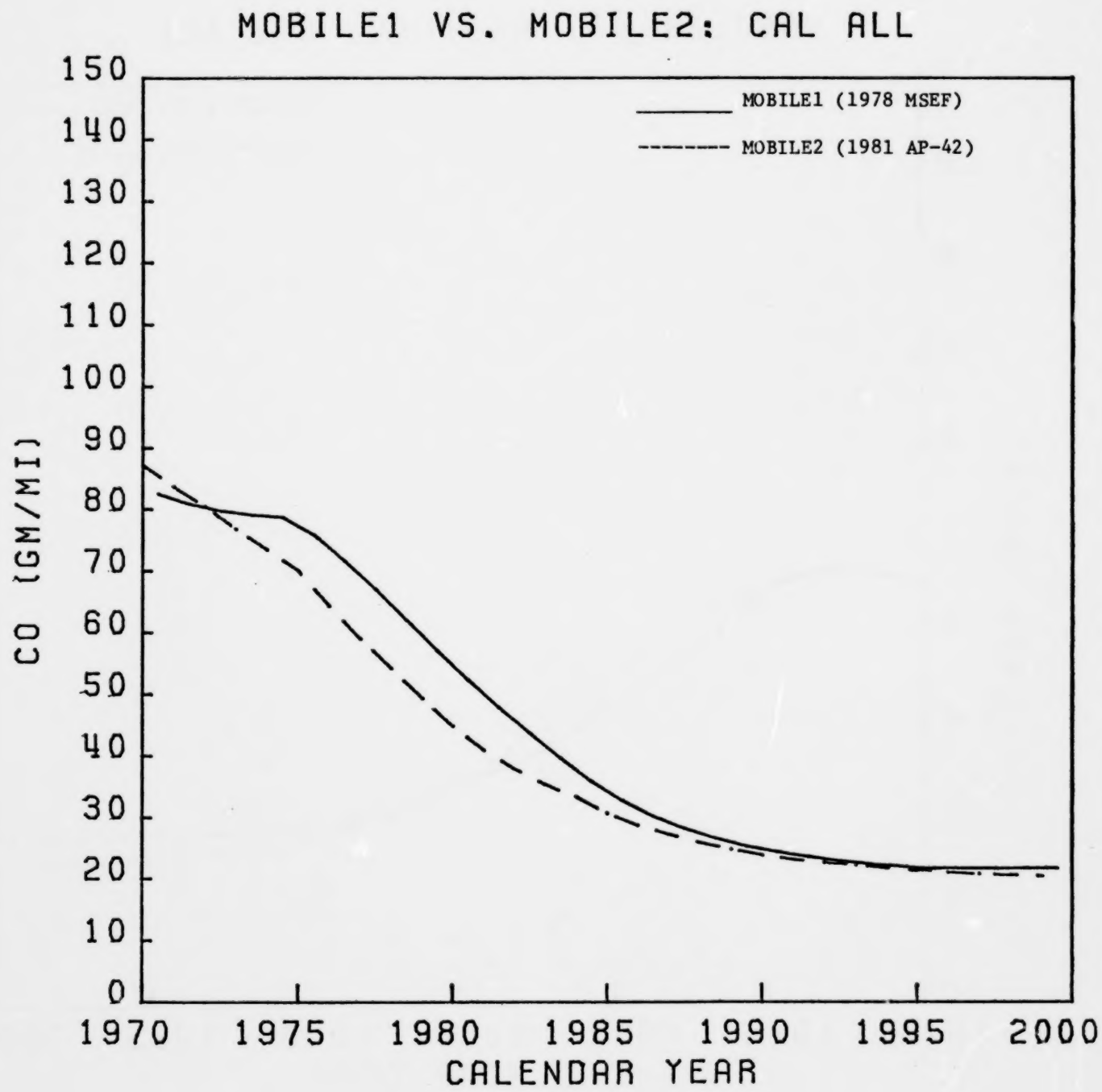


Figure 6
Low Altitude California
NOx Emissions vs. Calendar Year
For all Eight Vehicle Types Combined

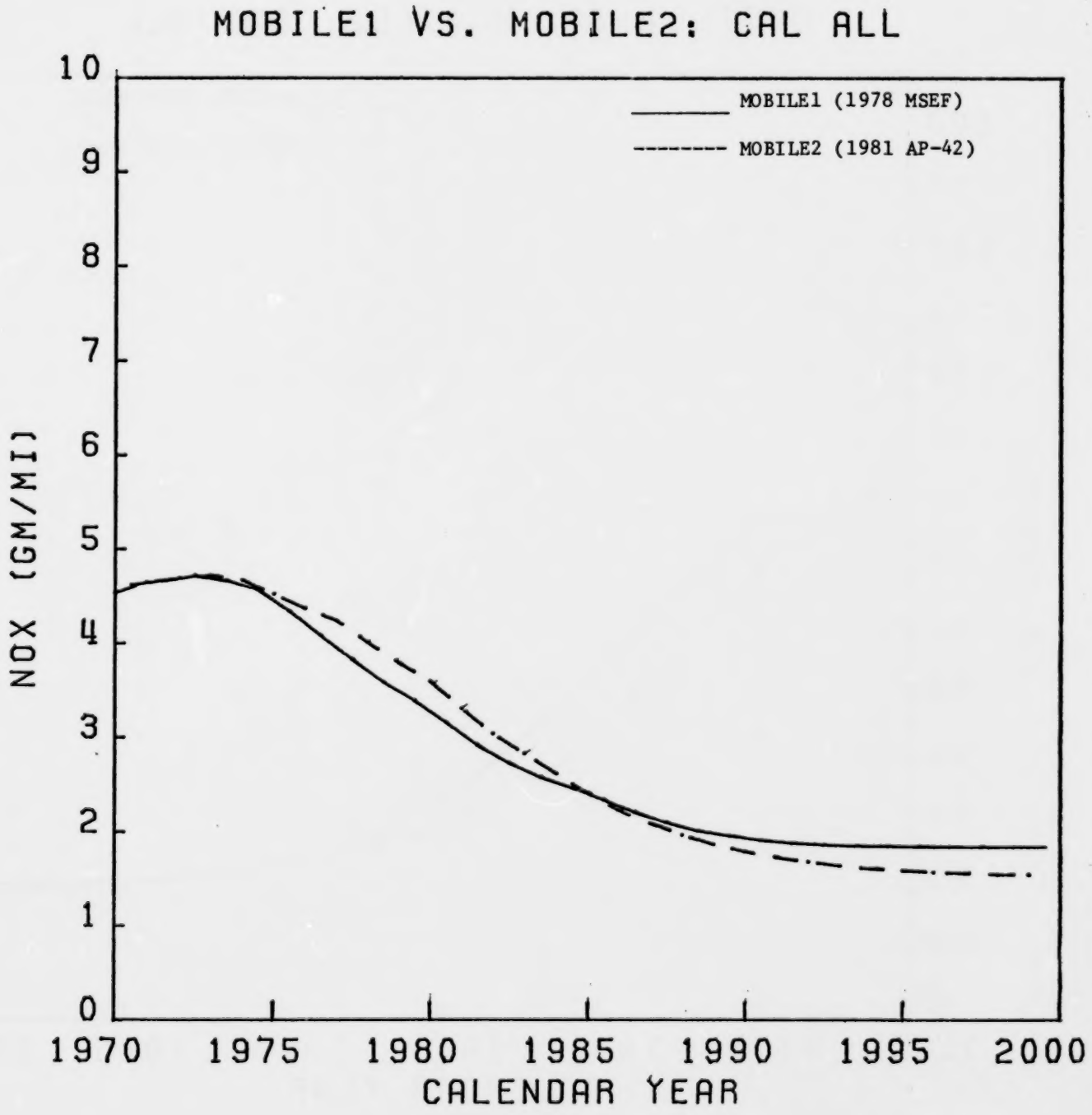


Figure 7
High Altitude Non-California
Non-Methane HC Emissions vs. Calendar Year
For all Eight Vehicle Types Combined

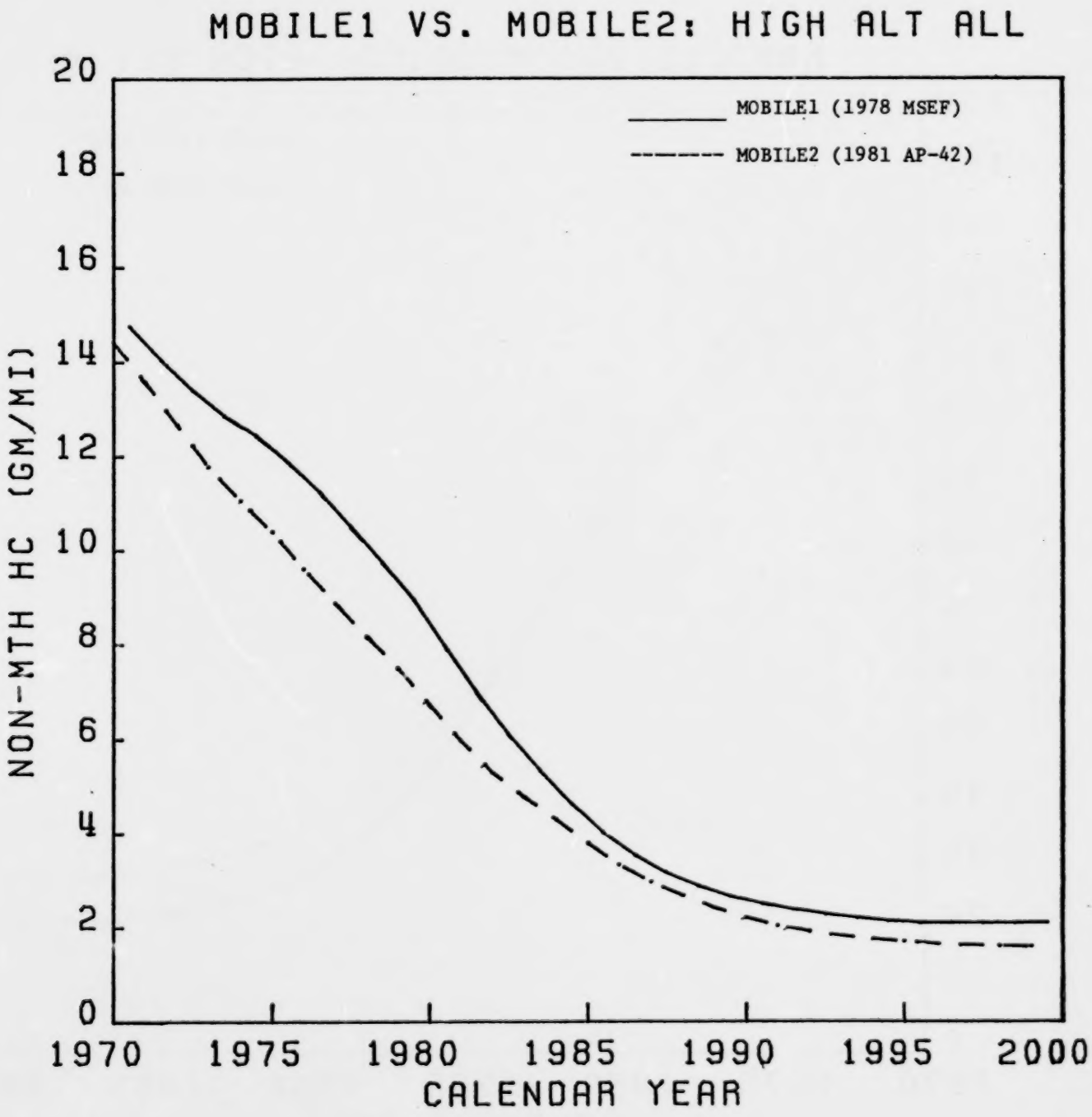


Figure 8
High Altitude Non-California
CO Emissions vs. Calendar Year
For all Eight Vehicle Types Combined

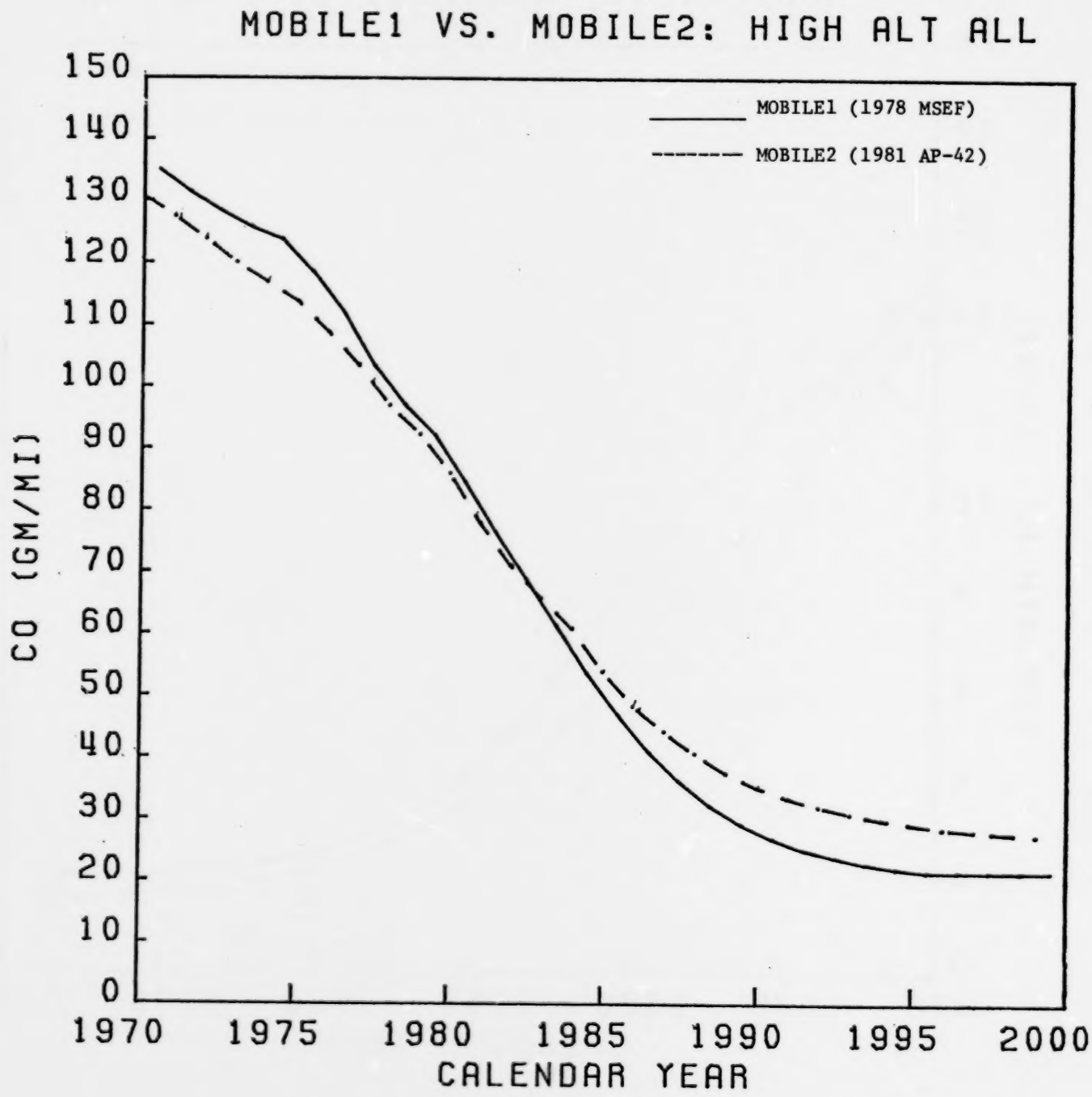
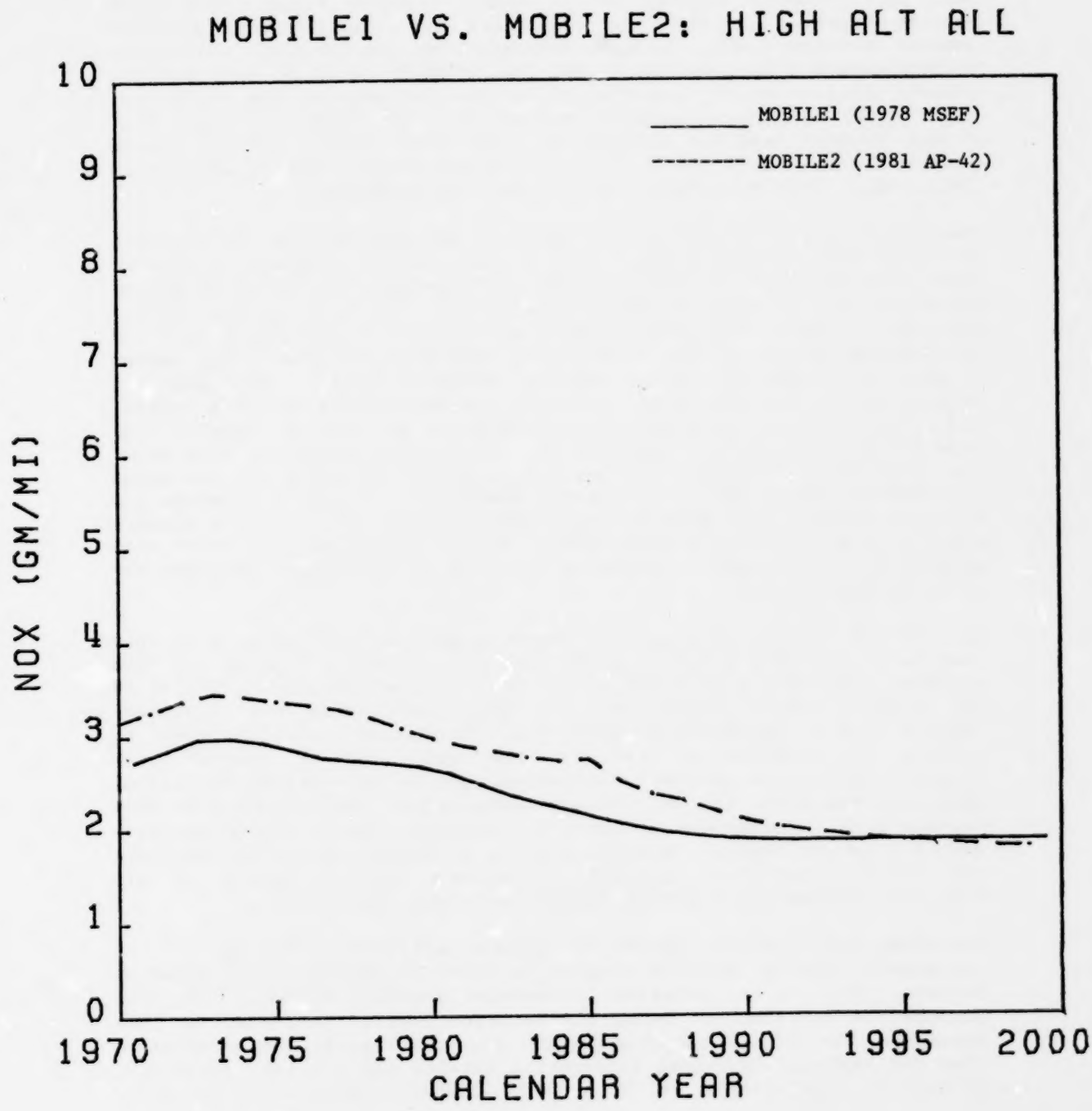


Figure 9
High Altitude Non-California
NOx Emissions vs. Calendar Year
For all Eight Vehicle Types Combined



C. DOCUMENT ORGANIZATION

This document presents the highway mobile source emission factors in three major parts. These three parts refer to the three regions of the country: 1) low altitude non-California, 2) California, and 3) high altitude non-California regions.

Each part presents highway mobile source emission factors for eight vehicle types. The eight vehicle types are 1) light duty gasoline powered vehicles (LDGV), 2) light duty gasoline powered trucks with gross vehicle weight (GVW) less than 6,001 lbs. (LDGT1), 3) light duty gasoline powered trucks with GVW less than 8,501 lbs. but greater than 6,000 lbs. (LDGT2), 4) heavy duty gasoline powered vehicles (HDGV), 5) light duty diesel powered vehicles (LDDV), 6) light duty diesel powered trucks (LDDT), 7) heavy duty diesel powered vehicles (HDDV), and 8) motorcycles (MC). Light duty vehicles and automobiles are synonymous.

Chapters 1 through 8 present the emission factors for the low altitude non-California vehicle types. Each of these eight chapters is divided into four sections: 1) Introduction, 2) Emissions, 3) Travel Weighting Fractions, and 4) Emission Correction Factors. The first section defines the vehicle type, the basic exhaust emissions test procedure, and the generalized equations for calculating emission factors. The second section presents the basic exhaust emission rates, crankcase and evaporative HC emission levels, January 1 basic exhaust emission levels, and idle exhaust emission rates. The third section details the distribution information required for the travel weighting fractions. The last section explains how the basic exhaust emissions are corrected for various ambient and vehicle usage conditions. Chapter 9 presents the emission factors for the California vehicle types. The emission factors for the high altitude non-California vehicle types are presented with Chapter 10. The tables referenced in each of these ten chapters are given in Appendix E.

In addition to the ten chapters, seven appendices are given with this document. Appendix A presents the emission standards assumed in this document. Appendix B illustrates how the total vehicle-miles-traveled by the highway mobile source fleet is apportioned among the individual vehicle types. Appendix C gives the calculation procedure used to combine the emissions of the two light duty gasoline powered truck classes. Appendix D presents the methodology for calculating the travel weighting fractions and the mileage accumulation distribution for each vehicle type. Appendix E presents the emission factor tables for each vehicle type and region. Appendix F gives an example on how to calculate the emission factors. Appendix G presents emission levels of all vehicles combined under various ambient and usage conditions.

Computing the emission factors is complex and time consuming. It is recommended that a computer program be used to calculate the emission factors. The EPA has developed a computer program, MOBILE2, that will perform the calculations using the emission factors presented in this document. The MOBILE2 computer program and user's guide can be obtained from the National Technical Information Service (NTIS), U.S. Department of Commerce, Springfield, VA 22161 (PB81 223067). Phone: (703) 487-4650.

D. VEHICLE INSPECTION AND MAINTENANCE PROGRAM

If an annual motor vehicle inspection and maintenance (I/M) program is in effect in the area for which emission factors are being calculated, emission reduction credits can be taken.

The methodologies for determining the I/M credits are contained in the Derivation of I/M Benefits for Pre-1981 Light-Duty Vehicles for Low Altitude, Non-California Areas, EPA-IMS/81-4 and Derivation of I/M Benefits for Post-1980 Light Duty Vehicles for Low Altitude, Non-California Areas, EPA-AA-IMS/81-2. The MOBILE2 computer program can apply these low altitude non-California I/M credits to the emission estimates.

The emission reduction credits attributable to an annual I/M program vary according to the type of program in effect. The MOBILE2 credits of an I/M program depend upon the following six factors.

1) The estimated first year failure rate (stringency factor) for the pre-1981 low altitude non-California LDGVs (or other vehicle types with similar emission control technologies). The pre-1975 vehicles are labeled Technology I vehicles and 1975-1980 vehicles are labeled Technology II vehicles.
2) The success rate in identifying 1981 and later model year low altitude non-California LDGVs operating under rich failure conditions (the identification rate of Technology IV vehicles). Technology III is not defined in MOBILE2.
3) The vehicle types affected by the I/M program: LDGV; LDGV & LDGT1; LDGV & LDGT2; or LDGV, LDGT1, & LDGT2.
4) The calendar year being analyzed and the calendar year the I/M program is implemented.
5) The presence or absence of an adequate mechanics training program.
6) The model years involved in the I/M program.

E. REACTIVE VS. NON-REACTIVE HYDROCARBON EMISSIONS

Available scientific evidence indicates that methane and a few other non-reactive organic compounds do not contribute significantly to ozone formations. EPA's Volatile Organic Compound policy, published in the Federal Register on July 8, 1977, allows a limited number of compounds, including methane, to be excluded from control actions. States have been advised that they should exclude these compounds from baseline emission inventories that are to be used for control strategy development for ozone.

Although motor vehicles are regulated directly by the Clean Air Act on a total hydrocarbon basis (rather than on a "reactive" hydrocarbon basis), it is appropriate, when estimating ozone levels, to consider only those motor vehicle emissions which will react to form ozone. However, consideration must be given to the format of any associated stationary source emission inventory so that mobile source and stationary source emission inventories are consistent in their exclusions.

Prior to the introduction of catalyst technology, virtually all (93% or greater) mobile source HC emissions were considered reactive. With present and future catalyst technology, the methane (i.e., non-reactive) fraction of total hydrocarbon emissions is increasing. Estimates of the methane percentages applicable to each vehicle category are given in Table 1.

While the MOBILE2 computer program can calculate either total or non-methane hydrocarbon emissions, all HC emission factors presented in this document are total hydrocarbons.

TABLE 1

METHANE FRACTION OF TOTAL HYDROCARBONS
FROM HIGHWAY MOBILE SOURCES

	Low Altitude Non-California		California		High Altitude Non-California	
Vehicle Type	Model Year	Methane Fraction	Model Year	Methane Fraction	Model Year	Methane Fraction
LDGV	Pre-1975	7%	Pre-1975	7%	Pre-1975	7%
	1975-80	13%	1975-79	13%	1975-80	13%
	1981+	32%	1980+	32%	1981+	32%
LDGT1	Pre-1975	7%	Pre-1975	7%	Pre-1975	7%
	1975-84	13%	1975-80	13%	1975-84	13%
	1985+	28%	1981+	28%	1985+	28%
LDGT2	Pre-1979	7%	Pre-1978	7%	Pre-1979	7%
	1979-84	13%	1978-80	13%	1979-84	13%
	1985+	28%	1981+	28%	1985+	28%
HDGV	Pre-1984	7%	Pre-1984	7%	Pre-1984	7%
	1984	13%	1984+	13%	1984	13%
	1985+	33%			1985+	33%
LDDV	All	4%	All	4%	All	4%
LDDT	All	4%	All	4%	All	4%
HDDV	All	4%	All	4%	All	4%
MC	Pre-1978	6%	Pre-1978	6%	Pre-1978	6%
	1978+	8%	1978-81	8%	1978+	8%
			1982+	9%		
Crank-case & Evap.	All	0%	All	0%	All	0%

F. PARTICULATE EMISSIONS

The particulate emissions for total exhaust, lead, sulfate, and tire particulates are presented in Table 2 for all low altitude and California vehicle/technology types. Similarly, the particulate emission factors for high altitude vehicle/technology types are presented in Table 3.

Where applicable, total exhaust particulate from non-catalyst vehicles using leaded gasoline is normalized to 2.0 grams/gallon Pb. Further, taking an intermediate value from experimental data, we assume lead particulate to be 30% of total exhaust particulate as measured over the FTP urban cycle from non-catalyst vehicles using leaded gasoline. This assumption is consistent with calculations based on fuel lead content, vehicle fuel economy, and percent total lead emitted as particulate.

No information is available on total exhaust particulate from HDGV using unleaded gasoline. As a result, the emission factor is estimated by the following:

$$\text{Total Exh}_{\text{HDGV(Unleaded)}} = \frac{\text{Total Exh}_{\text{LDV(Unleaded)}}\ \text{Total Exh}_{\text{HDV (Leaded)}}}{\text{Total Exh}_{\text{LDV(Leaded)}}}$$

$$= \frac{32}{240}\ (420) = 56 \text{ mg/mile}$$

No measured data could be found on total exhaust, lead, sulfate, and tire particulate emissions from light duty gasoline powered trucks (LDGT). Based on engineering judgement that the differential in average weight and average fuel economy between LDGTs and LDGVs is minor and that the two vehicle classes are similar within individual technology subgroups, it is assumed that LDGT particulate emission factors are equal to those of LDGVs.

For light duty diesel powered trucks (LDDT), the limited data available indicates no difference in exhaust particulate levels between LDDTs and LDDVs. Furthermore, exhaust particulate standards for LDDVs and LDDTs to be imposed on 1982 through 1984 model years are identical and roughly equivalent to currently measured levels. It is therefore assumed that the standard will be met, and the standard is selected as the appropriate emission factor for all model years through 1984. For 1985 and later model years, it is similarly assumed that the reduced standards for LDDVs and LDDTs will be met, and these are taken as the applicable emission factors.

The tire wear rate of 0.085 grams/mile/tire estimated for LDVs is assumed for all vehicle types due to lack of data. Tire particulate is then computed by vehicle type based on the average number of wheels and the estimate that 55% of the tire wear becomes suspended particulate.

Total exhaust particulates from all diesel powered vehicles at high altitude are estimated to increase by 39% over the levels at low

altitude. Sulfate levels at high altitude are estimated to decrease by 68% over the levels at low altitude. Due to insufficient data, all other particulate emission factors at high altitude are assumed equal to low altitude factors.

Table 2

PARTICULATE EMISSION FACTORS FOR LOW ALTITUDE AND CALIFORNIA VEHICLES

Vehicle Type	Technology Type	Total Exhaust FTP* (mg/mile)	Lead FTP* (mg/mile)	Sulfate CFDS* (mg/mile)	Tire (mg/mile)
LDGV/T	Noncat. Leaded	240(a)	72(f)	1	190(j)
LDGV/T	Noncat. Unleaded	32	2(g)	1	190
LDGV/T	Ox. Cat, No Air Pump	11	0(h)	5	190
LDGV/T	Ox. Cat, Air Pump	11	0	20	190
LDGV/T	3W Cat, No Air Pump	14	0	1	190
LDGV/T	3W + Ox. Cat, Air Pump	14	0	25	190
HDGV	Noncat. Leaded	420(b)	130(f)	1	370(k)
HDGV	Noncat. Unleaded	56(c)	4(g)	1	370
LDDV	All	600(d)/200(e)	0(i)	11	190
LDDT	All	600(d)/260(e)	0	18	190
HDDV	2-Stroke	2400	0	94	370
HDDV	4-Stroke	1500	0	81	370
MC	2-Stroke	330	-	-	94(l)
MC	4-Stroke	46	14(f)	-	94

* Denotes driving cycle for which particulates are measured.
\- Denotes no available basis for estimate.
(a) Typical 1974 LDV using gasoline with 2.0 gm/gal Pb.
(b) Normalized to 2.0 gm/gal leaded gasoline.
(c) Indirect estimates from LDGV/T and HDGV (leaded gas) factors.
(d) Particulate emission standards for pre-1985 model years.
(e) Particulate emission standards for 1985 and later model years.
(f) Indirect estimate from total exhaust particulates and assumed 30% lead fraction.
(g) Indirect estimate from leaded gasoline factor and ratio of lead content, unleaded to leaded gasoline.
(h) Assumes all lead deposited in catalyst.
(i) Assumes no significant lead levels in diesel fuel.
(j) Based on representative wear rate x 55% suspension factor.
(k) Based on LDV factor per tire and average of 8 tires per HDV.
(l) Based on LDV factor per tire and 2 tires per MC.

Table 3

PARTICULATE EMISSION FACTORS FOR HIGH ALTITUDE VEHICLES[a]

Vehicle Type	Technology Type	Total Exhaust FTP* (mg/mile)	Lead FTP* (mg/mile)	Sulfate CFDS* (mg/mile)	Tire (mg/mile)
LDGV/T	Noncat. Leaded	240	72	0	190
LDGV/T	Noncat. Unleaded	32	2	0	190
LDGV/T	Ox. Cat, No Air Pump	11	0	2	190
LDGV/T	Ox. Cat, Air Pump	11	0	6	190
LDGV/T	3W Cat, No Air Pump	14	0	0	190
LDGV/T	3W + Ox. Cat, Air Pump	14	0	8	190
HDGV	Noncat. Leaded	420	130	0	370
HDGV	Noncat. Unleaded	56	4	0	370
LDDV	All	830/280[b]	0	4	190
LDDT	All	830/360[b]	0	6	190
HDDV	2-Stroke	3400[b]	0	30	370
HDDV	4-Stroke	2100[b]	0	26	370
MC	2-Stroke	330	-	-	94
MC	4-Stroke	46	14	-	94

* Denotes driving cycle for which particulates are measured.
\- Denotes no available basis for estimate.
(a) All factors equivalent to low altitude factors unless otherwise noted.
(b) Assumes 39% increase in diesel total particulates relative to low altitude.
(c) Assumes 68% decrease in all sulfate emissions relative to low altitude.

PART ONE -- LOW ALTITUDE NON-CALIFORNIA

Chapter 1

LIGHT DUTY GASOLINE POWERED VEHICLES

1.A INTRODUCTION

Because of their widespread use, light duty gasoline powered vehicles (LDGV; passenger cars) are responsible for a large share of air pollutant emissions in many areas of the United States. A LDGV is defined to be any gasoline fueled motor vehicle designated primarily for transportation of persons and having a capacity of 12 persons or fewer. Substantial research effort has been expended to accurately characterize emissions from these vehicles. EPA's on-going program to collect in-use vehicle emissions was instituted a number of years ago in order to estimate emission levels.

In addition to the methodologies presented for calculating the basic exhaust emission levels for HC, CO, and NOx, data are given in this chapter for crankcase and evaporative hydrocarbon emissions, and emissions in the idle mode. Information is also given regarding the emission correction factors and travel weighting fractions.

1.A.1 Test Procedure

LDGV emissions testing is currently performed according to the procedures stipulated in the Federal Register (42 FR 32954, June 28, 1977) and the Code of Federal Regulations (40 CRF Part 86, Subpart B, July 1, 1980). The basic test conditions under which the LDGVs are tested are as follows:

1. Ambient temperature range is 68°F to 86°F.
2. Absolute humidity is adjusted to 75 grains of water per pound of dry air.
3. Average speed is 19.6 mph with 18% idle operation.
4. Average percent of vehicle-miles-traveled (VMT) in a cold start operation is 20.6%.
5. Average percent of VMT in a hot start operation is 27.3%.
6. Average percent of VMT in the stabilized operation is 52.1%.
7. Average trip length is 7.5 miles.

Additional elements regarding the test procedure that are reflected in the emission estimates are as follows:

1. Air conditioning not in use.
2. Car contains driver and passenger -- no additional passengers, luggage, etc.
3. Car is not pulling a trailer.

The test sequence for LDGVs is summarized below:

1. Determine the weight of the vehicle.
2. Determine the road-load (assuming level road, no curves, no wind) which is a function of weight and frontal area.

3. Precondition the vehicle (i.e., vehicle is briefly driven).
4. Place the vehicle in an ambient temperature environment between 68°F and 86°F with its engine off for at least 12 hours.
5. Push the vehicle onto a dynamometer.
6. Start the engine and begin collecting exhaust emissions.
7. Emissions for the first 505 seconds are collected for test segment #1. The mileage driven is 3.59 miles with an average speed of 26 mph. This is the cold start portion of the test.
8. Test segment #2 collects emissions for the next 870 seconds. The engine is not turned off between Steps 7 and 8. The mileage driven is 3.91 miles and the average speed is 16 mph. This is the stabilized portion of the test.
9. The engine is turned off.
10. The engine remains off for 10 minutes.
11. The car is restarted, the first 505 seconds are rerun, and emissions are collected for test segment #3. This is the hot start portion of the test.
12. The grams of each pollutant are determined for each test segment.
13. NOx emissions are adjusted for humidity.
14. The basic exhaust emission level in grams per mile is computed.

1.A.2 General Emissions Calculation Equations

The following generalized equations are used to calculate the LDGV emission factors:

(a) BEFnpstwx = SUMi(BERipn * [NMi] * TFin * Pipstwxn * [ACCFipt * ELCFip * TTCFip * HCF] + CCEVi * TFin)

(b) IEFnp = SUMi(IERipn * [NMi] * TFin)

where the lower case letters are subscripts, the [ ]'s refer to optional variables and:

BEFnpstwx = The basic exhaust emission factors in grams/mile on January 1 of calendar year n, pollutant p, average speed s, ambient temperature t, VMT fraction of vehicles in a cold start mode w, and VMT fraction of vehicles in a hot start mode x.

SUMi( ) = The summation over 20 model years from i=n-19 to i=n, where n is the calendar year.

BERipn = The basic exhaust emission level in grams/mile for model year i and pollutant p on January 1 of calendar year n.

NMi = The non-methane fraction of total HC for model year i. This optional variable can only be applied to HC emissions and is defined in Section E of the INTRODUCTION.

TFin = The fraction of the total LDGV miles driven by model year i on January 1 of calendar year n.

Ripstwxn = The speed/temperature/operating-mode correction factor for model year i, pollutant p, average speed s, ambient temperature t, VMT fraction of vehicles in a cold start w, and VMT fraction of vehicles in a hot start x; on January 1 of calendar year n.

ACCFipt = The optional air conditioning correction factor for model year i, pollutant p, and ambient temperature t.

ELCFip = The optional extra load correction factor for model year i and pollutant p.

TTCFip = The optional trailer towing correction factor for model year i and pollutant p.

HCF = The optional NOx humidity correction factor. This variable can only be applied to NOx emissions.

CCEVi = The crankcase and evaporative HC emission levels for model year i. This variable is a part of HC emissions.

IEFnp = The idle exhaust emission factors in grams/minute on January 1 of calendar year n for pollutant p.

IERipn = The idle exhaust emission level in grams/minute for model year i and pollutant p on January 1 of calendar year n.

1.B EMISSIONS

This section discusses the emission estimates for the LDGVs: Basic exhaust emission rates, crankcase and evaporative HC emission levels, January 1 basic exhaust emission levels, and idle exhaust emission rates. The emission standards are given in Section A.1.1 of Appendix A. The emissions reflect vehicles which have received typical in-use maintenance. Further, the vehicles are not involved in an I/M program.

1.B.1 Basic Exhaust Emission Rates

The basic exhaust emission rates for LDGVs were derived for the most part from in use vehicle data. The basic assumption in the derivation of the emission rates is that emission levels change linearly as vehicles accumulate mileage. The rates are dependent upon two estimated variables: (1) zero mile emission levels and (2) the emission deterioration rates. The zero mile emission levels are the average grams of pollutants emitted by the vehicles at zero miles. The emission deterioration rates adjust the zero mile levels as vehicles accumulate mileage.

The basic exhaust emission levels are calculated from a linear function:

BERipn = ZMLip + DRip * Min

where the lower case letters are subscripts and

BERipn = The basic exhaust emission level, in grams/mile, for model year i and pollutant p, on January 1 of calendar year n.

ZMLip = The estimated zero mile emission level, in grams/mile, for model year i and pollutant p.

DRip = The estimated emission deterioration rate, in grams/mile/10,000 miles, for model year i and pollutant p.

Min = The model year i cumulative mileage, divided by 10,000 miles, on January 1 of calendar year n.

The basic exhaust emission rates are presented in Table 1.1.1A for the different LDGV model year groups and pollutants.

1.B.2 Crankcase and Evaporative HC Emission Levels

In addition to the basic exhaust HC emission levels, crankcase and evaporative HC emissions need to be included. Crankcase HC emission levels result from the crankcase as the engine is running. The two major sources of evaporative HC emissions are hot soak and diurnal losses. Hot soak losses are generally produced as fuel evaporates from the carburetor system at the end of a trip. Diurnal changes in ambient temperature result in expansion of the air-fuel mixture in a partially filled fuel tank. As a result, gasoline vapor is expelled into the atmosphere. Crankcase and evaporative HC emission levels are calculated according to the following equation:

CCEVi = (HSKi * TPD + DNLi)/MPD + CCi

where the lower case letters are subscripts and.

CCEVi = The estimated crankcase and evaporative HC emission level, in grams/mile, for model year i.

HSKi = The estimated hot soak HC emission level, in grams/trip, for model year i.

TPD = The average number of trips/day.

DNLi = The estimated diurnal HC emission level, in grams/day, for model year i.

MPD = The average miles driven per day.

CCi = The estimated crankcase HC emission level, in grams/mile, for model year i.

Crankcase and evaporative HC emission levels are summarized in Table 1.1.1B. This table presents each variable described above for every model year.

1.B.3 January 1 Basic Exhaust Emission Levels

The basic exhaust emission levels for the latest 20 model years on January 1, 1970 through 1993, are given in Tables 1.1.2A through 1.1.2C for HC, CO, and NOx, respectively. The HC basic exhaust emission levels reflect total, rather than non-methane, HC emissions and exclude crankcase and evaporative HC emission levels.

1.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

Estimates of emissions expelled from the automotive fleet during a vehicle's idle operating mode have become a major concern in transportation control plans, environmental impact statements, and state implementation plans. Examples of extended idle time are waits at shopping centers, airports, sport complexes, and drive-in window service businesses. The emission estimates presented in this section reflect engines operating in a hot stabilized condition.

The idle exhaust emission rates are expressed in units of emissions per unit time (grams per minute) as opposed to the basic exhaust emission rate units (grams per mile). The LDGV idle exhaust emission levels are calculated from the estimated zero mile emission levels and emission deterioration rates given in Table 1.1.3. The idle emission level (in units of gm/min) is calculated from a linear function similar to the basic exhaust emission level function given in Section 1.B.1. The idle emission function is IERipn = ZMLIDLip + DRIDLip * Min. The definition of the terms in this equation are almost identical to those in Section 1.B.1, except these are idle emissions and are expressed in grams/minute for the zero mile levels and grams/minute/10,000 miles for the idle emission deterioration rates.

1.C TRAVEL WEIGHTING FRACTIONS

The LDGV travel weighting fractions are the individual model year proportions of the total LDGV VMT. To generate the travel weighting fractions, three distributions, described in detail below, are required: (1) the fleet annual mileage accumulation rate distribution, (2) the registration distribution, and (3) the estimated fleet sales fraction distribution (to account for the proportional increase of diesel powered vehicles).

The travel weighting fractions in this document reflect a January 1 evaluation date. For the LDGVs, the model year is assumed to begin sales on the October 1 preceding the corresponding calendar year. Further, it is assumed that the vehicles are sold and accumulate mileage according to a uniform distribution (see below). These assumptions permit the estimation of the January 1 fleet mileage accumulation rate distribution and the January 1 registration distribution from July 1 information. An example of the travel weighting fraction calculation is given in Table 1.1.5.

1.C.1 Fleet Annual Mileage Accumulation Rate Distribution

A given vehicle is estimated to travel according to the annual mileage accumulation distribution given in Table 1.1.4A. For example, the vehicle in its first year travels 14,440 miles at a uniform rate. In its second year, it travels 13,900 miles at a uniform rate. Finally in its 20th year, it travels 4,300 miles at a uniform rate.

The annual fleet mileage accumulation rate distribution is derived from the annual mileage accumulation rate distribution for individual vehicles. This derivation averages out the effects of purchase date. The derivation is described in Appendix D, and the resulting distribution is given in Table 1.1.4A.

1.C.2 Model Year Registration Distribution

Table 1.1.4A also presents the estimated LDGV model year registration distribution fractions. These fractions are the individual model year proportions of the entire LDV fleet (both gasoline and diesel powered vehicles combined). The registration distribution is based on July 1 figures and is transformed to January 1 figures according to the procedure in Appendix D. The January 1 LDV fleet registration distribution is presented in Table 1.1.4A.

1.C.3 Fleet Sales Distribution

Assuming that diesel powered vehicles will become more prominent, the travel weighting fractions need to account for them. It is estimated that gasoline powered vehicles will account for proportionately fewer of the future light duty vehicle model year sales according to the distribution given in Table 1.1.4B. The distribution is anticipated to stabilize in 1991, with 80 percent of the LDV sales being gasoline powered vehicles.

The fleet sales distribution is used in the travel weighting fractions to account for the influx of diesel. The travel weighting fractions change every January 1 in calendar years 1975 through 2010. Prior to 1975, diesels are considered to be an insignificant proportion of the LDV fleet. Further, even though the fleet sales distribution is predicted to stablize in 1991, the travel weighting fractions require 20 years to stabilize. From that time on (2010+), the travel weighting fractions remain constant.

1.D EMISSION CORRECTION FACTORS

The LDGV basic exhaust emission levels are based on test results under the standardized conditions defined in Section 1.A.1. However, the basic exhaust emission levels are affected by ambient and vehicle usage conditions which differ from the prescribed test procedure. The conditions under which emissions are known to vary are the average speed, ambient temperature, fraction of VMT in cold and hot start operating modes, use of air conditioning, carrying of an extra load, trailer towing, and humidity. Emission correction factors are available to compensate for these conditions.

1.D.1 Speed Correction Factor

The test procedure used for collecting the basic exhaust emissions is a driving cycle with an average speed of 19.6 mph. For those situations where the average speed of the vehicle deviates from this value, a speed correction factor is applied. This speed correction factor will now be examined and later incorporated into the Ripstwxn correction factor in Section 1.D.3.

The speed correction factor is given in Table 1.1.6. It is symbolized as SCFipsxw where the lower case letters are subscripts and

SCFipsxw = The speed correction factor for model year i and pollutant p at the average speed of s. This is normalized to the speed associated with a cold start mode VMT fraction x and a hot start mode VMT fraction w.

The user is cautioned that this correction factor is only valid for speeds in the 5 through 55 mph range since the regression equations were based on speed data in that range. Extrapolations to speeds beyond this range should not be made.

1.D.2 Emission Temperature Correction Factor

The established LDGV emissions test procedure requires an ambient temperature between 68°F and 86°F. For situations which differ from this temperature range, an emission temperature correction factor is applied. The emission temperature correction factors were based upon data from several in-use vehicle emission test programs: EPA, Bureau of the Mines, Bartlesville Energy Research Center, Canadian Environmental Sevices, and Gulf Research. Analysis of the data indicate that all three pollutants (HC, CO, and NOx) in all three test segments (bags) are affected by temperature. Therefore, a separate emission temperature correction factor is given for each bag and pollutant in Table 1.1.7A. The emission temperature correction factor equation is as follows:

$$TCFipbt = EXP(TCipbtt(T - TT))$$

where the lower case letters are subscripts and

TCFipbt = The emission temperature correction factor for model year i, pollutant p, test segment b, and ambient temperature t.

EXP = The exponential function.

TCipbtt = The temperature correction factor coefficient for model year i, pollutant p, test segment b, and reference temperature tt.

T = Ambient temperature (Fahrenheit).

TT = Reference temperature which equals 67.5°F when T is less than 68°F and equals 86.5°F when T is greater than 86°F.

1.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor

A single emission correction factor called Ripstwxn adjusts for speed, temperature, and hot/cold start operating-mode conditions that differ from the basic test procedure. A vehicle will usually emit more emissions in a cold start mode than in a stabilized or a hot start mode. As such, vehicles will emit more pollution after an extended engine off period than vehicles that have not set long enough to be in the cold start mode. As a result, the operating mode is a necessary element of this correction factor.

An integral part of the operating mode portion of Ripstwxn is the normalized bag fractions. The normalized bag fractions adjust Ripstwxn for emissions attributable to each operating mode. These fractions for LDGVs are given in Table 1.1.7B.

The Ripstwxn correction factor is defined as follows:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM)*SCFipswx

where the lower case letters are subscripts and

Ripstwxn = The speed/temperature/operating-mode emission correction factor for model year i, pollutant p, average speed s, ambient temperature t, fraction of VMT in a cold start operating mode w, and fraction of VMT in a hot start operating mode x; on January 1 of calendar year n.

TERM1 = W * TCFiplt *(Bipl + Dipl * Min)

TERM2 = (1-W-X)*TCFip2t * (Bip2 + Dip2 * Min)

TERM3 = X * TCFip3t *(Bip3 + Dip3 * Min)

DENOM = Bip0 + Dip0 * Min

SCFipswx = The emission speed correction factor for model year i and pollutant p at the average speed of s, normalized to the speed associated with a cold start mode VMT fraction x and a hot start mode VMT fraction w.

Bipb = The normalized bag fraction intercept coefficient for model year i, pollutant p, and test segment b (test segment 0 is the entire basic test procedure).

Dipb = The normalized bag fraction slope coefficient for model year i, pollutant p, and test segment b (test segment 0 is the entire basic test procedure).

Min = The fleet cumulative mileage for model year i on January 1 of calendar year n.

W = The fraction of VMT traveled in the cold start mode.

X = The fraction of VMT traveled in the hot start mode.

TCFipbt = The emission temperature correction factor for model year i, pollutant p, test segment b, and ambient temperature t.

1.D.4 Air Conditioning Correction Factor

The LDGV emissions can be significantly affected by the use of air conditioning. The air conditioning correction factor coefficients are based on data from vehicles tested at several different temperatures with the air conditioner on. These correction factors are given in Table 1.1.8A. The general correction factor equation is as follows:

ACCFipt = U*Vi ([Aip + Bip * (T - 75)] -1) +1

where the lower case letters are subscripts and

ACCFipt = The air conditioning correction factor for model year i, pollutant p, and ambient temperature t.

U = (DI - DILO)/(DIHI - DILO) = Of the vehicles equipped with an air conditioner, the estimated fraction that have it in use (0<= U<= 1).

DI = (DB + WB) * .4 + 15 = Discomfort index.

DB = The dry bulb temperature in degrees Fahrenheit.

WB = The wet bulb temperature in degrees Fahrenheit.

DILO = The highest discomfort index where no air conditioners are in use (set to 70 in MOBILE2).

DIHI = The lowest discomfort index where all the air conditioners are in use (set to 80 in MOBILE2).

Vi = The fraction of model year i LDGVs equipped with an air conditioner. These fractions are given in Table 1.1.8B.

Aip = The air conditioning correction factor intercept coefficient for model year i and pollutant p.

Bip = The air conditioning correction factor slope coefficient for model year i and pollutant p.

T = Ambient temperature in degrees Fahrenheit.

75 = The normalizing ambient temperature for the ACCF linear function.

1.D.5 Extra Load Correction Factor

The basic exhaust emission rates are based on the "typical" vehicle weight with a driver and passenger, vehicle fuel, and other liquids. There are, however, situations in which vehicles have extra weight due to additional passengers, luggage, etc. In these events, emissions are known to change.

To apply the vehicle extra load correction factor found in Table 1.1.9 to a specific situation, it is necessary for a user to have an estimate of the percentage of LDGV VMT accumulated with an additional 500 pounds. The correction factor for extra load is computed according to the following equation:

$$ELCFip = (XLCip - 1) * U + 1$$

where the lower case letters are subscripts and

ELCFip = The extra load correction factor for model year i and pollutant p.

XLCip = The extra load correction factor coefficient for model year i and pollutant p.

U = The fraction of LDGV VMT accumulated with an extra load ($0 \leq U \leq 1$).

1.D.6 Trailer Towing Correction Factor

As with the extra load correction factor, the trailer towing correction factor will adjust LDGV emissions for usage conditions which differ from the basic test procedure. It has been determined that towing a trailer will affect a vehicle's emissions. As such, a correction factor is available to adjust LDGV emissions when a trailer is being towed. The correction factor coefficients given in Table 1.1.10 are valid for a trailer weight of 1000 pounds. This correction factor is computed by the following equation:

$$TTCFip = (TTCip - 1) * U + 1$$

where the lower case letters are subscripts and

TTCFip = The trailer towing correction factor for model year i and pollutant p.

TTCip = The trailer towing correction factor coefficient for model year i and pollutant p.

U = The fraction of LDGV VMT accumulated while towing a trailer ($0 \leq U \leq 1$).

I.D.7 NOx Humidity Correction Factor

The NOx emission factors are normalized to 75 grains of water per pound of dry air. In order to adjust NOx emissions to different humidity conditions, a multiplicative correction factor is available. The formula for the correction factor is given below, and is applicable for all model years:

$$HCF = 1.0 - .0047 * (H - 75)$$

where:

HCF = The NOx humidity correction factor.

H = Humidity level in grains of water per pound of dry air ($20 <= H <= 140$).

Chapter 2

LIGHT DUTY GASOLINE POWERED TRUCKS I

2.A INTRODUCTION

This chapter presents the emission factors for light duty gasoline powered trucks with a gross vehicle weight (GVW) rating of 6,000 pounds or less (LDGT1). A LDGT1 is defined to be any gasoline fueled motor vehicle designed primarily for transportation of property and rated at 6,000 pounds GVW or less. Although LDGT1s have a load carrying capability that exceeds that of passenger cars, they are typically used for personal transportation; as passenger car substitutes.

As with Chapter 1, this chapter divides the emission factors into three major sections: (1) Emissions, (2) travel weighting fractions, and (3) emission correction factors.

2.A.1 Test Procedure

The test procedure used for determining the LDGT1 basic exhaust emissions is almost identical to the LDGV test procedure. The difference between the two test procedures is primarily the road-load horsepower setting. The summary of the test procedure in Chapter 1 is correct for LDGT1s. Therefore, refer to Chapter 1 for a brief overview.

2.A.2 General Emissions Calculation Equations

The generalized calculating equations presented in Chapter 1 are also valid for the LDGT1s. Although the emissions, travel weighting fractions, and emission correction factors levels for LDGT1s are different from the LDGVs, all of the equations are identical.

2.B EMISSIONS

This section discusses the LDGT1 emission estimates: Basic exhaust emission rates, crankcase and evaporative HC emission levels, January 1 basic exhaust emission levels, and idle exhaust emission rates. The emission standards are given in Section A.1.2 of Appendix A. The emissions reflect trucks which have received typical in-use maintenance. Further, the trucks are not involved in an I/M program.

The discussions of the different emissions in Chapter 1 are also valid for the LDGT1s. Therefore, the discussions will not be reiterated. Please refer to Chapter 1 for the discussions that correspond to the subsections below.

2.B.1 Basic Exhaust Emission Rates

The LDGT1 basic exhaust emission rates are given in Table 1.2.1A. This table presents the LDGT1 zero mile emission levels and emission deterioration rates for every model year. The emissions are measured in grams per mile.

2.B.2 Crankcase and Evaporative HC Emission Levels

The LDGT1 crankcase and evaporative HC emission levels are presented in Table 1.2.1B. This table presents the emissions for every model year and crankcase and evaporative HC component: diurnal losses, hot soak losses, and crankcase losses.

2.B.3 January 1 Basic Exhaust Emission Levels

January 1, 1970 through 1993, LDGT1 basic exhaust emission levels are given in Tables 1.2.2A through 1.2.2C for HC, CO, and NOx, respectively. The HC basic exhaust emission levels reflect total, rather than non-methane, HC emissions and exclude crankcase and evaporative HC levels.

2.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

The LDGT1 hot stabilized idle exhaust emission rates are given in Table 1.2.3. These emission levels are measured in grams per minute and reflect engines operating in a hot stabilized condition.

2.C TRAVEL WEIGHTING FRACTIONS

The LDGT1 travel weighting fractions are the individual model year proportions of the total LDGT1 VMT. To generate the travel weighting fractions, three distributions are required: (1) the fleet annual mileage accumulation rate distribution, (2) the registration distribution, and (3) the estimated fleet sales fraction distribution (to account for the proportional increase of diesel powered trucks). The first and second distributions are given in Table 1.2.4A, and the third distribution is given in Table 1.2.4B. More detailed information is available in Chapter 1 on these distributions.

The travel weighting fractions in this document reflect a January 1 evaluation date. For the LDGTls, the model year is assumed to begin sales on the October 1 preceding the corresponding calendar year. Further, it is assumed that the trucks are sold and accumulate mileage according to a uniform distribution. These assumptions permit the estimation of the January 1 fleet mileage accumulation rate distribution and the January 1 registration distribution from July 1 information. An example of the travel weighting fraction calculation is given in Table 1.2.5.

2.D EMISSION CORRECTION FACTORS

The LDGT1 basic exhaust emission levels are based on test results under the standardized conditions defined in Chapter 1. However, the basic exhaust emission levels are affected by ambient and truck usage conditions which differ from the prescribed test procedure. The conditions under which emissions are known to vary are the average speed, ambient temperature, fraction of VMT in cold and hot start operating modes, use of air conditioning, carrying of an extra load, trailer towing, and humidity level. Emission correction factors are available to compensate for these conditions.

The LDGTls correction factors are based on the LDGV information. Therefore, the LDGTl correction factors are those from the LDGV's, and the LDGV discussions in Chapter 1 are valid for the LDGTls.

2.D.1 Speed Correction Factor

The test procedure used for collecting the basic exhaust emissions is a driving cycle with an average speed of 19.6 mph. For those situations where the average speed of the truck deviates from this value, a speed correction factor is applied. The LDGTl speed correction factor is given in Table 1.2.6.

2.D.2 Emission Temperature Correction Factor

The established LDGTl emissions test procedure requires an ambient temperature between 68°F and 86°F. For those situations where the ambient temperature is not in this range, an emission temperature correction factor is applied. Table 1.2.7A presents this correction factor for the LDGTls.

2.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor

A single emission correction factor called Ripstwxn adjusts for speed, temperature, and operating-mode conditions that differ from the basic test procedure. As described in Chapter 1, Ripstwxn depends on normalized bag fractions. The LDGTl normalized bag fractions are given in Table 1.2.7B.

2.D.4 Air Conditioning Correction Factor

The LDGTl emissions can be significantly affected by the use of air conditioning. These correction factors are given in Table 1.2.8A. The fractions of LDGTls equipped with an air conditioner, by model year, are given in Table 1.2.8B.

2.D.5 Extra Load Correction Factor

The basic exhaust emission rates are based on the "typical" truck weight with a driver and passenger, fuel, and other liquids. There are, however, situations in which trucks have extra weight due to additional passengers, luggage, load, etc. In these events, emissions are known to change.

To apply the truck extra load correction factor found in Table 1.2.9 to a specific situation, it is necessary for a user to have an estimate of the percentage of LDGTl VMT accumulated with an additional 500 pounds.

2.D.6 Trailer Towing Correction Factor

As with the extra load correction factor, the trailer towing correction factor will adjust LDGTl emissions for usage conditions which differ from the basic test procedure. The correction factor coefficients given in Table 1.2.10 are valid for a trailer weight of 1000 pounds.

2.D.7 NOx Humidity Correction Factor

The NOx emission factors are normalized to 75 grains of water per pound of dry air. In order to adjust NOx emissions to different humidity conditions, a multiplicative correction factor is available. The formula for the correction factor is given below, and is applicable for all model years:

HCF = 1.0 - .0047 * (H - 75)

where:

HCF = The NOx humidity correction factor.

H = Humidity level in grains of water per pound of dry air (20<=H<=140).

Chapter 3

LIGHT DUTY GASOLINE POWERED TRUCKS II

3.A INTRODUCTION

This chapter presents the emission factors for light duty gasoline powered trucks with a gross vehicle weight (GVW) rating between 6,001 and 8,500 pounds (LDGT2). A LDGT2 is defined to be any gasoline fueled motor vehicle designed primarily for transportation of property and rated between 6,001 pounds and 8,500 pounds GVW, inclusive. This vehicle type is required since these trucks were classified as heavy duty vehicles through the 1978 model year. Beginning with the 1979 model year, these trucks have been considered as light duty trucks.

In general, every LDGV section and subsection discussion in Chapter 1 is valid for this chapter. Therefore, these discussions will not be reiterated. Please refer to Chapter 1 for a complete discussion of the sections and subsections of this chapter.

As with the other chapters, the emission factors are separated into three major sections: (1) Emissions, (2) travel weighting fractions, and (3) emission correction factors.

3.A.1 Test Procedure

The test procedure used for determining the LDGT2 basic exhaust emissions is almost identical to the LDGV test procedure. The difference between the two test procedures is primarily the road-load horsepower setting. The LDGV test procedure summarized in Chapter 1 is valid for the LDGT2s.

3.A.2 General Emissions Calculation Equations

Chapter 1 also presents the generalized calculating equations that are valid for the LDGT2s. Although the emissions, travel weighting fractions, and emission correction factors for the LDGT2s are different from the LDGVs, all of the equations are identical.

3.B EMISSIONS

This section presents the LDGT2 emissions: Basic exhaust emission rates, crankcase and evaporative HC emission levels, January 1 basic exhaust emission levels, and idle exhaust emission rates. The pre-1979 model year LDGT2 were considered heavy duty vehicles; their emission standards are given in Section A.1.3 of Appendix A. The 1979 and later LDGT2 emission standards are given in Section A.1.2 of Appendix A. The emissions reflect trucks which have received typical in-use maintenance. Further, the trucks are not involved in an I/M program.

3.B.1 Basic Exhaust Emission Rates

The LDGT2 basic exhaust emission rates are given in Table 1.3.1A. This table presents the LDGT2 zero mile emission levels and emission deterioration rates for every model year. The emissions are measured in grams per mile.

3.B.2 Crankcase and Evaporative HC Emission Levels

The LDGT2 crankcase and evaporative HC emission levels are given in Table 1.3.1B. This table presents the emissions for every model year and emission component: diurnal losses, hot soak losses, and crankcase losses.

3.B.3 January 1 Basic Exhaust Emission Levels

January 1, 1970 through 1993, LDGT2 basic exhaust emission levels are given in Tables 1.3.2A through 1.3.2C for HC, CO, and NOx, respectively. The HC basic exhaust emission levels reflect total, rather than non-methane, HC emissions and exclude crankcase and evaporative HC levels.

3.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

The LDGT2 hot stabilized idle exhaust emission rates are given in Table 1.3.3. These emissions are measured in grams per minute and reflect engines operating in a hot stabilized condition.

3.C TRAVEL WEIGHTING FRACTIONS

The LDGT2 travel weighting fractions are the individual model year proportions of the total LDGT2 VMT. To generate the travel weighting fractions, three distributions are required: (1) the fleet annual mileage accumulation rate distribution, (2) the registration distribution, and (3) the estimated fleet sales fraction distribution (to account for the proportional increase of diesel powered trucks). The first and second distributions are given in Table 1.3.4A, and the third distribution is given in Table 1.3.4B. More detailed information is available in Chapter 1 on these three distributions.

The travel weighting fractions in this document reflect a January 1 evaluation date. For the LDGT2s, the model year is assumed to begin sales on the October 1 preceding the corresponding calendar year. Further, it is assumed that the trucks are sold and accumulate mileage according to a uniform distribution. These assumptions permit the estimation of the January 1 fleet mileage accumulation rate distribution and the January 1 registration distribution from July 1 information. An example of the travel weighting fraction calculation is given in Table 1.3.5.

3.D EMISSION CORRECTION FACTORS

The LDGT2 basic exhaust emission levels are based on test results under the standardized conditions defined in Chapter 1. However, the basic exhaust emission levels are affected by ambient and truck usage conditions which differ from the prescribed test procedure. The conditions under which emissions are known to vary are the average speed, ambient temperature, fraction of VMT in cold and hot start operating modes, use of air conditioning, carrying of an extra load, trailer towing, and humidity level. Emission correction factors are available to compensate for these conditions.

The LDGT2 emission correction factors are based on the LDGV information. Therefore, the LDGT2 correction factors are those from the LDGVs, and the discussions in Chapter 1 are valid for the LDGT2s.

3.D.1 Speed Correction Factor

The test procedure used for collecting the basic exhaust emissions is a driving cycle with an average speed of 19.6 mph. For those situations where the average speed of the truck deviates from this value, a speed correction factor is applied. The LDCT2 average cycle speed emission correcion factor is given in Table 1.3.6.

3.D.2 Emission Temperature Correction Factor

The established LDGT2 emissions test procedure requires an ambient temperature between 68°F and 86°F. For those situations where the ambient temperature is not in this range, an emission temperature correction factor is applied. Table 1.3.7A presents this correction factor for the LDGT2s.

3.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor

A single emission correction factor called Ripstwxn adjusts for speed, temperature, and operating-mode conditions that differ from the basic test procedure. As described in Chapter 1, Ripstwxn depends on normalized bag fractions. The LDGT2 normalized bag fractions are given in Table 1.3.7B.

3.D.4 Air Conditioning Correction Factor

The LDGT2 emissions can be significantly affected by the use of air conditioning. These correction factors are given in Table 1.3.8A. The fractions of LDGT2s equipped with an air conditioner, by model year, are given in Table 1.3.8A.

3.D.5 Extra Load Correction Factor

The basic exhaust emission rates are based on the "typical" truck weight with a driver and passenger, fuel, and other liquids. There are, however, situations in which trucks have extra weight due to additional passengers, luggage, load, etc. In these events, emissions are known to change.

To apply the truck extra load correction factor found in Table 1.3.9 to a specific situation, it is necessary for a user to have an estimate of the percentage of LDGT2 VMT accumulated with an additional 500 pounds.

3.D.6 Trailer Towing Correction Factor

As with the extra load correction factor, the trailer towing correction factor will adjust LDGT2 emissions for usage conditions which differ from the basic test procedure. The correction factor coefficients given in Table 1.3.10 are valid for a trailer weight of 1000 pounds.

3.D.7 NOx Humidity Correction Factor

The NOx emission factors are normalized to 75 grains of water per pound of dry air. In order to adjust NOx emissions to different humidity conditions, a multiplicative correction factor is available. The formula for the correction factor is given below, and is applicable for all model years:

$$HCF = 1.0 - .0047 * (H - 75)$$

where:

HCF = The NOx humidity correction factor.

H = Humidity level in grains of water per pound of dry air ($20 \leq H \leq 140$).

Chapter 4

HEAVY DUTY GASOLINE POWERED VEHICLES

4.A INTRODUCTION

This chapter presents the emission factors for the heavy duty gasoline powered vehicles (HDGV). A HDGV is defined to be any gasoline fueled motor vehicle designated primarily for the transportation of property and rated at more than 8,500 pounds gross vehicle weight (GVW), or designated primarily for transportation of persons and having a capacity of more than 12 persons.

This chapter presents the HDGV emission factors in three major sections: (1) Emissions, (2) travel weighting fractions, and (3) emission correction factors.

4.A.1 Test Procedure

The method for determining the HDGV emission levels is based on a test procedure that is different from the procedures used in earlier editions of AP-42. The HDGV basic exhaust emission rates are based on the engine dynamometer transient test procedure stipulated in the Federal Register (45 FR 4181, January 21, 1980) and the Code of Federal Regulations (40 CRF, Part 86, Subpart N, July 1, 1980). The basic test conditions under which the HDGVs are tested are as follows:

1. Ambient temperature range is 68°F through 86°F.
2. Absolute humidity is adjusted to 75 grains of water per pound of dry air.
3. Estimated cycle speed is 19.9 mph with 27% idle operation.
4. Average percent VMT in a cold start operation is 14.3%.
5. Average percent VMT in a hot start operation is 86.7%.
6. No average percent VMT in the stabilized operation.
7. Estimated trip length is 6.5 miles.

The test procedure for the HDGVs can be briefly described by the following:

1. Generate the maximum torque vs. speed curve of the engine.
2. Precondition the engine with practice cycle runs.
3. With the engine off, let it sit for at least 12 hours between 68°F and 86°F. An optional procedure is the forced cool-down procedure, whereby cool water is circulated (and/or air directed onto the engine) through the engine's water coolant system until the engine oil is between 68°F and 75°F.
4. Conduct the cold start test. The estimated mileage is 6.5 miles and cycle speed is 19.9 mph.
5. Turn off the engine.
6. Keep the engine off for 20 minutes.
7. Conduct the hot start test. The cycle is the same as the cold start cycle.
8. Calculate the grams of pollutant and total brake horsepower-hour for each test cycle.

9. Correct NOx to 75 grains of water per pound of dry air.
10. Calculate the basic exhaust emissions in grams per brake horsepower-hour.

4.A.2 General Emissions Calculation Equations

To calculate the HDGV emissions, the following generalized equations are used:

(a) BEFnpst = SUMi(BERipn * [NMi] * TFin * SCFips * TCFipt + CCEVi * TFin)

(b) IEFnp = SUMi(IERipn * [NMi] * TFin)

where the lower case letters are subscripts, the [ ]'s refer to optional variables and:

BEFnpst = The basic exhaust emission factors in grams per mile on January 1 of calendar year n for pollutant p, average speed s, and ambient temperature t.

SUMi( ) = The summation over 20 model years from i=n-19 to i=n, where n is the calendar year.

BERipn = The basic exhaust emission level in grams/mile for model year i and pollutant p on January 1 of calendar year n.

NMi = The non-methane fraction of total HC for model year i. This optional variable can only be applied to HC emissions and is defined in Section E of the INTRODUCTION.

TFin = The fraction of the total HDGV miles driven by model year i on January 1 of calendar year n.

SCFips = The speed correction factor for model year i and pollutant p at the average speed of s.

TCFipt = The temperature correction factor for model year i and pollutant p at the ambient temperature of t.

CCEVi = The crankcase and evaporative HC emission level for model year i. This variable is a part of HC emission factors.

IEFnp = The idle exhaust emission factors in grams/minute on January 1 of calendar year n for pollutant p.

IERipn = The idle exhaust emission level in grams/minute for model year i and pollutant p on January 1 of calendar year n.

4.B EMISSIONS

This section discusses the emission estimates for the HDGVs. The four subsections are (1) basic exhaust emission rates, (2) crankcase and evaporative HC emission levels, (3) January 1 basic exhaust emission

levels, and (4) idle exhaust emission rates. The emission standards are given in Section A.1.3 of Appendix A. The emissions reflect vehicles which have received typical in-use maintenance. Further, the vehicles are not involved in an I/M program.

The discussions in Chapter 1 for the four emission subsections are valid for the HDGVs. Therefore, the discussions will not be reiterated. Please refer to Chapter 1 for a complete discussion of the following four subsections.

4.B.1 Basic Exhaust Emission Rates

The HDGV basic exhaust emission rates are given in Table 1.4.1A. This table presents the HDGV zero mile emission levels and emission deterioration rates for every model year. From the HDGV test procedure, emissions are measured in grams per brake horsepower-hour. However, the emissions in this section are given in grams per mile to be consistent with other emission measurements.

4.B.2 Crankcase and Evaporative HC Emission Levels

The HDGV crankcase and evaporative HC emission levels are given in Table 1.4.1B. This table presents the emissions for every model year and emission component: diurnal losses, hot soak losses, and crankcase losses.

4.B.3 January 1 Basic Exhaust Emission Levels

The January 1, 1970 through 1993, HDGV basic exhaust emission levels are given in Tables 1.4.2A through 1.4.2C for HC, CO, and NOx, respectively. The HC basic exhaust emission levels reflect total, rather than non-methane, HC emissions and exclude crankcase and evaporative HC emission levels.

4.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

The HDGV hot stabilized idle exhaust emission rates are given in Table 1.4.3. These emissions are measured in grams per minute and reflect engines operating in a hot stabilized condition.

4.C TRAVEL WEIGHTING FRACTIONS

The HDGV travel weighting fractions are the individual model year proportions of the total HDGV VMT. To generate the HDGV travel weighting fractions, two distributions are required: (1) the fleet annual mileage accumulation rate distribution and (2) the registration distribution. These two distributions are given in Table 1.4.4. More detailed information is available in Chapter 1 on these distributions.

The travel weighting fractions in this document reflect a January 1 evaluation date. For the HDGVs, the model years are assumed to begin sales on January 1. Further, it is assumed that the vehicles are sold and accumulate mileage according to a uniform distribution. These assumptions permit the estimation of the January 1 fleet mileage accumulation rate distribution and the January 1 registration

distribution from July 1 information. The travel weighting fractions are given in Table 1.1.5.

4.D EMISSION CORRECTION FACTORS

The HDGV basic exhaust emission levels are based on test results under the standardized conditions defined in Section 4.A.1. However, the basic exhaust emission levels are affected by ambient and vehicle usage conditions which differ from the prescribed test procedure. The conditions under which HDGV emissions are known to vary are the average speed and ambient temperature. Emission correction factors are available to compensate for these conditions.

4.D.1 Speed Correction Factor

The test procedure used for collecting the basic exhaust emissions is a transient engine cycle with an estimated speed of about 20.0 mph. For those situations where the average speed of the vehicle deviates from this value, a speed correction factor is applied. The HDGV speed correction factor equations are as follows:

(a) $SCFips = EXP(Aip + Bip*s + Cip*s^2)$ for HC and CO, and

(b) $SCFips = Aip + Bip*s$ for NOx

where

SCFips = The correction factor for model year i and pollutant p at the average speed of s.

EXP = The exponential function.

Aip = The speed correction factor intercept coefficient for model year i and pollutant p.

Bip = The speed correction factor first order coefficient for model year i and pollutant p.

Cip = The speed correction factor second order coefficient for model year i and pollutant p.

The coefficients for the speed correction factor equations are given in Table 1.4.6. The speed correction factors are only valid for speeds in the 5 through 55 mph range.

4.D.2 Emission Temperature Correction Factor

The established HDGV test procedure requires an ambient temperature between 68°F and 86°F. For situations where the ambient temperature is not in this range, an emission temperature correction factor is applied. This temperature correction factor differs slightly in form from the temperature correction factor given in Chapter 1. The HDGV temperature correction factor is for the entire transient test as opposed to the LDGV temperature correction factors for the individual test segments. The

HDGV temperature correction factor is given in Table 1.4.7 and the equation is as follows:

TCFipt = EXP(TCiptt(T - TT))

where the lower case letters are subscripts and

TCFipt = The emission temperature correction factor for model year i, pollutant p, and ambient temperature t.

EXP = The exponential function.

TCiptt = The temperature correction factor coefficient for model year i, pollutant p, and reference temperature tt.

T = Ambient temperature (Fahrenheit).

TT = Reference temperature which equals 67.5°F when T is less than 68°F and equals 86.5°F when T is greater than 86°F.

Chapter 5

LIGHT DUTY DIESEL POWERED VEHICLES

5.A INTRODUCTION

Diesel powered passenger cars are becoming more prominent in the light duty vehicle fleet. As a result, emission factors are required for these light duty diesel powered vehicles (LDDV). A LDDV is defined to be any diesel fueled motor vehicle designated primarily for transportation of persons and having a capacity of 12 persons or fewer.

As with the other chapters, the LDDV emission factors are presented in three major sections: (1) Emissions, (2) travel weighting fractions, and (3) emission correction factors.

5.A.1 Test Procedure

The test procedure used for determining the LDDV basic exhaust emissions is identical to the LDGV test procedure. Therefore, refer to Chapter 1 for a brief overview.

5.A.2 General Emissions Calculation Equations

The LDDV generalized equations are almost identical to the LDGV equations. The differences are the four optional emission correction factors and the crankcase and evaporative HC emissions. To calculate the LDDV emissions, the following generalized equations are used:

(a) BEFnpstwx = SUMi(BERipn * [NMi] * TFin * Ripstwxn)

(b) IEFnp = SUMi(IERipn * [NMi] * TFin)

where the lower case letters are subscripts, the [ ]'s refer to optional variables and:

BEFnpstwx = The basic exhaust emission factors in grams/mile on January 1 of calendar year n, pollutant p, average speed s, ambient temperature t, VMT fraction of vehicles in a cold start mode w, and VMT fraction of vehicles in a hot start mode x.

SUMi( ) = The summation over 20 model years from i=n-19 to i=n, where n is the calendar year.

BERipn = The basic exhaust emission level in grams/mile for model year i and pollutant p on January 1 of calendar year n.

NMi = The non-methane fraction of total HC for model year i. This optional variable can only be applied to HC emissions and is defined in Section E of the INTRODUCTION.

TFin = The model year i fraction of the total LDDV miles driven on January 1 of calendar year n.

Ripstwxn = The speed/temperature/operating-mode correction factor for model year i, pollutant p, average speed s, ambient temperature t, VMT fraction in a cold start w, and VMT fraction of vehicles in a hot start x; on January 1 of calendar year n.

IEFnp = The idle exhaust emission factors in grams/minute on January 1 of calendar year n for pollutant p.

IERipn = The idle exhaust emission levels in grams/minute for model year i and pollutant p on January 1 of calendar year n.

5.B EMISSIONS

This section discusses the LDDV emission estimates: Basic exhaust emission rates, crankcase and evaporative HC emission levels, January 1 basic exhaust emission levels, and idle exhaust emission rates. The emission standards are given in Section A.1.1 of Appendix A. The emissions reflect vehicles which have received typical in-use maintenance. Further, the vehicles are not involved in an I/M program.

With the exception of the crankcase and evaporative HC emissions, the discussions of the different emissions in Chapter 1 are also valid for the LDDVs. Therefore, the discussions will not be reiterated. Please refer to Chapter 1 for the discussions that correspond to the subsections below.

5.B.1 Basic Exhaust Emission Rates

The LDDV basic exhaust emission rates are given in Table 1.5.1. This table presents the LDDV zero mile emission levels and emission deterioration rates for every model year. The emissions are measured in grams per mile.

5.B.2 Crankcase and Evaporative HC Emission Levels

LDDVs are considered to have insignificant crankcase and evaporative HC emission levels. Therefore, no emission estimates are given.

5.B.3 January 1 Basic Exhaust Emission Levels

January 1, 1970 through 1993, LDDV basic exhaust emission levels are given in Tables 1.5.2A through 1.5.2C for HC, CO, and NOx, respectively. The HC basic exhaust emission levels reflect total, rather than non-methane, HC emissions.

5.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

The LDDV hot stabilized idle exhaust emission rates are given in Table 1.5.3. These emission levels are measured in grams per minute and reflect engines operating in a hot stabilized condition.

5.C TRAVEL WEIGHTING FRACTIONS

The LDDV travel weighting fractions are individual model year proportions of the total LDDV VMT. To generate the travel weighting fractions, three distributions are required: (1) the fleet annual mileage accumulation rate distribution, (2) the registration distribution, and (3) the estimated fleet sales fraction distribution (to account for the proportional increase of diesel powered vehicles). The first and second distributions are given in Table 1.5.4A, and the third distribution is given in Table 1.5.4B. More detailed information is available in Chapter 1 on these distributions.

The travel weighting fraction in this document reflect a January 1 evaluation date. For the LDDVs, the model year is assumed to begin sales on the October 1 preceding the corresponding calendar year. Further, it is assumed that the vehicles are sold and accumulate mileage according to a uniform distribution. These assumptions permit the estimation of the January 1 fleet mileage accumulation rate distribution and the January 1 registration distribution from July 1 information. An example of the travel weighting fraction calculation is given in Table 1.5.5.

5.D EMISSION CORRECTION FACTORS

The LDDV basic exhaust emission levels are based on test results under the standardized conditions defined in Chapter 1. However, the basic exhaust emission levels are affected by ambient and vehicle usage conditions which differ from the prescribed test procedure. The conditions under which LDDV emissions are known to vary are the average speed, ambient temperature, and fraction of VMT in cold and hot start operating modes. Emission correction factors are available to compensate for these conditions. Use of air conditioning, carrying of an extra load, trailer towing, and humidity levels may affect LDDV emissions, but no information is available to estimate the effects.

5.D.1 Speed Correction Factor

The test procedure used for collecting the basic exhaust emissions is a driving cycle with an average speed of 19.6 mph. For those situations where the average speed of the vehicle deviates from this value, a speed correction factor is applied. This correction factor will now be examined and later incorporated into the Ripstwxn correction factor in Section 5.D.3.

The LDDV speed correction factor is based on the heavy duty diesel vehicle (HDDV) correction factor, and is fully defined in Section 7.D.1 of Chapter 7. The speed correction factor for LDDVs is normalized to 19.6 mph. The LDDV speed correction factor equation is as follows:

$$SCFipswx = EXP(Aip + Bip*s + Cip*s^2)/EXP(Aip + Bip*sadj + Cip*sadj^2)$$

where the lower case letters are subscripts and

SCFipswx = The speed correction factor for model year i, pollutant p, and average speed s, normalized for the cold start w and hot start x VMT fractions.

EXP = The exponential function.

Aip = The speed correction factor intercept coefficient for model year i and pollutant p.

Bip = The speed correction factor first order coefficient for model year i and pollutant p.

Cip = The speed correction factor second order coefficient for model year i and pollutant p.

sadj = The adjusted speed, adjusted for the cold start w and hot start x VMT fractions. $1/sadj = ((w + x)/26) + ((1 - w - x)/16)$

The user is cautioned that the correction factor as given in Table 1.5.6 is only valid for speeds in the 5 through 55 mph range since the regression equations were based on speed data in that range. Extrapolations to speeds beyond this range should not be made.

5.D.2 Emission Temperature Correction Factor

The established LDDV emissions test procedure requires an ambient temperature between 68°F and 86°F. For those situations where the ambient temperature is not in this range, an emission temperature correction factor is applied. Table 1.5.7A presents this correction factor for the LDDVs. Based upon the coefficients given in Table 1.5.7A (which are all zero), LDDV emissions will not be affected by temperature. Based on engineering judgement and limited data, LDDV emissions appear to be insensitive to temperature.

5.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor

A single emission correction factor called Ripstwxn adjusts for speed, temperature, and operating-mode conditions that differ from the basic test procedure. As described in Chapter 1, Ripstwxn depends on normalized bag fractions. The LDDV normalized bag fractions are given in Table 1.5.7B.

Chapter 6

LIGHT DUTY DIESEL POWERED TRUCKS

6.A INTRODUCTION

The light duty diesel powered trucks (LDDT) are becoming more prominent in the light duty truck fleet. Therefore, the LDDT emission factors are required. A LDDT is defined to be any diesel fueled motor vehicle designed primarily for transportation of property and rated at 8,500 pounds gross vehicle weight or less.

This chapter, like all others, divides the emission factors into three major sections: (1) Emissions, (2) travel weighting fractions, and (3) emission correction factors.

6.A.1 Test Procedure

The test procedure used for determining the LDDT basic exhaust emissions is almost identical to the LDGV test procedure. The difference between the two test procedures is primarily the road-load horsepower setting. The summary of the test procedure in Chapter 1 is correct for LDDTs. Therefore, refer to Chapter 1 for a brief overview.

6.A.2 General Emissions Calculation Equations

The generalized calculating equations for the LDDTS are presented in Chapter 5. All of the equations are identical, although the emissions, travel weighting fractions, and emission correction factors levels for LDDTs are different from the LDDVs.

6.B EMISSIONS

This section discusses the LDDT emission estimates: Basic exhaust emission rates, crankcase and evaporative HC emission levels, January 1 basic exhaust emission levels, and idle exhaust emission rates. The emission standards are given in Section A.1.2 of Appendix A. Prior to the 1978 model year, the number of LDDTs are considered insignificant. As a result, no emissions are measured prior to January 1, 1978. The emissions also reflect trucks which have received typical in-use maintenance. Further, the trucks are not involved in an I/M program.

With the exception of the crankcase and evaporative HC emissions, the discussions of the different emissions in Chapter 1 are valid for the LDDTs. Therefore, the discussions of the different emissions in Chapter 1 will not be reiterated. Please refer to Chapter 1 for the discussions that correspond to the subsections below.

6.B.1 Basic Exhaust Emission Rates

The LDDT basic exhaust emission rates are given in Table 1.6.1. This table presents the LDDT zero mile emission levels and emission deterioration rates for every model year. The emissions are measured in grams per mile.

6.B.2 Crankcase and Evaporative HC Emission Levels

LDDT are considered to have insignificant crankcase and evaporative HC emission levels. Therefore, no emission estimates are given.

6.B.3 January 1 Basic Exhaust Emission Levels

January 1, 1978 through 1993, LDDT basic exhaust emission levels are given in Tables 1.6.2A through 1.6.2C for HC, CO, and NOx, respectively. The HC basic exhaust emission levels reflect total, rather than non-methane, HC emissions.

6.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

The LDDT hot stabilized idle exhaust emission rates are given in Table 1.6.3. These emission levels are measured in grams per minute and reflect engines operating in a hot stabilized condition.

6.C TRAVEL WEIGHTING FRACTIONS

The LDDT travel weighting fractions are the individual model year proportion of the total LDDT VMT. To generate the travel weighting fractions, three distributions are required: (1) the fleet annual mileage accumulation rate distribution, (2) the registration distribution, and (3) the estimated fleet sales fraction distribution (to account for the proportional increase of diesel powered trucks). The first and second distributions are given in Table 1.6.4A, and the third distribution is given in Table 1.6.4B. More detailed information is available in Chapter 1 on these distributions.

The travel weighting fractions in this document reflect a January 1 evaluation date. For the LDDTs, the model year is assumed to begin sales on the October 1 preceding the corresponding calendar year. Further, it is assumed that the trucks are sold and accumulate mileage according to a uniform distribution. These assumptions permit the estimation of the January 1 fleet mileage accumulation rate distribution and the January 1 registration distribution from July 1 information. An example of the travel weighting fraction calculation is given in Table 1.6.5.

6.D EMISSION CORRECTION FACTORS

The LDDT basic exhaust emission levels are based on test results under the standardized conditions defined in Chapter 1. However, the basic exhaust emission levels are affected by ambient and truck usage conditions which differ from the prescribed test procedure. The conditions under which LDDT emissions are known to vary are the average speed, ambient temperature, and fraction of VMT in cold and hot start operating modes. Emission correction factors are available to compensate for these conditions. Use of air conditioning, carrying of an extra load, trailer towing, and humidity levels may affect LDDT emissions, but no information is available to estimate the effects.

6.D.1 Speed Correction Factor

The test procedure used for collecting the basic exhaust emissions is a driving cycle with an average speed of 19.6 mph. For those situations where the average speed of the truck deviates from this value, a speed correction factor is applied. This correction factor will now be examined and later incorporated into the Ripstwxn correction factor in Section 6.D.3.

The LDDT emission cycle speed correction factor given in Table 1.6.6 is based on the heavy duty diesel vehicle (HDDV) correction factor and is fully defined in Section 7.D.1 of Chapter 7. The LDDT speed correction factor is normalized to 19.6 and is identical to the LDDV speed correction factor.

The user is cautioned that this correction factor is only valid for speeds in the 5 through 55 mph range since the regression equations were based on speed data in that range. Extrapolations to speeds beyond this range should not be made.

6.D.2 Emission Temperature Correction Factor

The established LDDT emissions test procedure requires an ambient temperature between 68°F and 86°F. For those situations where the ambient temperature is not in this range, an emission temperature correction factor is applied. Table 1.6.7A presents this correction factor for the LDDTs. Based on the coefficients given in Table 1.6.7A (which are all zero), LDDT emissions will not be affected by temperature. Based on engineering judgement and limited data, diesel emissions appear to be insensitive to temperature.

6.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor

A single emission correction factor called Ripstwxn adjusts for speed, temperature, and operating-mode conditions that differ from the basic test procedure. As described in Chapter 1, Ripstwxn depends on normalized bag fractions. The LDDT normalized bag fractions are given in Table 1.6.7B.

Chapter 7

HEAVY DUTY DIESEL POWERED VEHICLES

7.A INTRODUCTION

This chapter presents the emission factors for the heavy duty diesel powered vehicles (HDDV). A HDDV is defined to be any diesel fueled motor vehicle designated primarily for the transportation of property and rated at more than 8,500 pounds of gross vehicle weight (GVW), or designated primarily for transportation of persons and having a capacity of more than 12 persons.

This chapter presents the HDDV emission factors in three major sections: (1) Emissions, (2) travel weighting fractions, and (3) emission correction factors.

7.A.1 Test Procedure

The test procedure used for determining the HDDV basic exhaust emissions is almost identical to the HDGV test procedure. The major difference between the two test procedures is the test cycle. The HDDV test procedure is similar to the one for HDGVs. Therefore, refer to Chapter 4 for a brief overview. The specific differences are as follows:

1. The HDDV test procedure estimated cycle speed is 19.2 mph with 37% idle operation.
2. The HDDV test procedure has the estimated trip length of 6.4 miles.
3. NOx is not corrected for humidity.

7.A.2 General Emissions Calculation Equations

To calculate the HDDV emissions, the following generalized equations are used:

(a) BEFnpst = SUMi(BERipn * [NMi] * TFin * SCFips * TCFipt)

(b) IEFnp = SUMi(IERipn * [NMi] * TFin)

where the lower case letters are subscripts, the [ ]'s refer to optional variables and:

BEFnpst = The basic exhaust emission factors in grams per mile on January 1 of calendar year n for pollutant p, average speed s, and ambient temperature t.

SUMi( ) = The summation over 20 model years from i=n-19 to i=n, where n is the calendar year.

BERipn = The basic exhaust emission level in grams/mile for model year i and pollutant p on January 1 of calendar year n.

NMi = The non-methane fraction of total HC for model year i. This optional variable can only be applied to HC emissions and is defined in Section E of the INTRODUCTION.

TFin = The model year i fraction of the total HDDV miles driven on January 1 of calendar year n.

SCFips = The speed correction factor for model year i and pollutant p at the average speed of s.

TCFipt = The temperature correction factor for model year i and pollutant p at the ambient temperature of t.

IEFnp = The idle exhaust emission factors in grams/minute on January 1 of calendar year n for pollutant p.

IERipn = The idle exhaust emission level in grams/minute for model year i and pollutant p on January 1 of calendar year n.

7.B EMISSIONS

This section discusses the emission estimates for the HDDVs. The four subsections are (1) basic exhaust emission rates, (2) crankcase and evaporative HC emission levels, (3) January 1 basic exhaust emission levels, and (4) idle exhaust emission rates. The emission standards are given in Section A.1.4 of Appendix A. The emissions reflect vehicles which have received typical in-use maintenance. Further, the vehicles are not involved in an I/M program.

With the exception of the crankcase and evaporative HC emissions, the discussions in Chapter 1 for the four emission subsections are valid for the HDDVs. Therefore, the discussions will not be reiterated here. Please refer to Chapter 1 for the discussions that correspond to the subsections below.

7.B.1 Basic Exhaust Emission Rates

The HDDV basic exhaust emission rates are given in Table 1.7.1A. This table presents the HDDV zero mile emission levels and emission deterioration rates for every model year. From the HDDV test procedure, emissions are measured in grams per brake horsepower-hour. However, the emissions in this section are given in grams per mile for consistency.

7.B.2 Crankcase and Evaporative HC Emission Levels

HDDVs are considered to have insignificant crankcase and evaporative HC emission levels. Therefore, no emission estimates are given.

7.B.3 January 1 Basic Exhaust Emission Levels

The January 1, 1970 through 1993, HDDV basic exhaust emission levels are given in Tables 1.7.2A through 1.7.2C for HC, CO, and NO_x, respectively. The HC basic exhaust emission levels reflect total, rather than non-methane, HC emissions.

7.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

The HDDV hot stabilized idle exhaust emission rates are given in Table 1.7.3. These emissions are measured in grams per minute and reflect engines operating in a hot stabilized condition.

7.C TRAVEL WEIGHTING FRACTIONS

The HDDV travel weighting fractions are the individual model year proportions of the total HDDV VMT. To generate the HDDV travel weighting fractions, two distributions are required: (1) the fleet annual mileage accumulation rate distribution and (2) the registration distribution. These two distributions are given in Table 1.7.4. More detailed information is available in Chapter 1 on these distributions.

The travel weighting fractions in this document reflect a January 1 evaluation date. For the HDDVs, the model years are assumed to begin sales on January 1. Further, it is assumed that the vehicles are sold and accumulate mileage according to a uniform distribution. These assumptions permit the estimation of the January 1 fleet mileage accumulation rate distribution and the January 1 registration distribution from July 1 information. The travel weighting fraction are given in Table 1.7.5.

7.D EMISSION CORRECTION FACTORS

The HDDV basic exhaust emission levels are based on test results under the standardized conditions defined in Section 4.A.1 of Chapter 4 and Section 7.A.1. However, the basic exhaust emission levels are affected by ambient and vehicle usage conditions which differ from the prescribed test procedure. The conditions under which HDDV emissions are known to vary are the average speed and ambient temperature. Emission correction factors are available to compensate for these conditions.

7.D.1 Speed Correction Factor

The test procedure used for collecting the basic exhaust emissions is a transient engine cycle with an estimated speed of about 20.0 mph. For those situations where the average speed of the vehicle deviates from this value, a speed correction factor is applied. The HDDV speed correction factor equation is as follows:

$$SCFips = EXP(Aip + Bip*s + Cip*s^2)$$

where

SCFips = The correction factor for model year i and pollutant p at the average speed of s.

EXP = The exponential function.

Aip = The speed correction factor intercept coefficient for model year i and pollutant p.

Bip = The speed correction factor first order coefficient for model year i and pollutant p.

Cip = The speed correction factor second order coefficient for model year i and pollutant p.

The coefficients for the speed correction factor equations are given in Table 1.7.6. The speed correction factors are only valid for speeds in the 5 through 55 mph range. Further, the speed correction factors are normalized to 20.0 mph.

7.D.2 Emission Temperature Correction Factor

The established HDDV emissions test procedure requires an ambient test temperature between 68°F and 86°F. For situations which differ from this ambient temperature range, an emission temperature correction factor is applied. This temperature correction factor differs slightly from the temperature correction factor given in Chapter 1. The HDDV temperature correction factor is for the entire transient test as opposed to the LDGV temperature correction factors for the individual test segments. The HDDV temperature correction factor is given in Table 1.7.7 and the equation is as follows:

TCFipt = EXP(TCiptt(T - TT))

where the lower case letters are subscripts and

TCFipt = The emission temperature correction factor for model year i, pollutant p, and ambient temperature t.

EXP = The exponential function.

TCiptt = The temperature correction factor coefficient for model year i, pollutant p, and reference temperature tt.

T = Ambient temperature (Fahrenheit).

TT = Reference temperature which equals 67.5°F when T is less than 68°F and equals 86.5°F when T is greater than 86°F.

All of the coefficients in Table 1.7.7 are zero. This indicates that the HDDV emissions are not affected by temperature.

Chapter 8

MOTORCYCLES

8.A INTRODUCTION

Motorcycles usually are not considered a significant source of air pollution. However, they are becoming a dominant fleet. In 1978, approximately 7.3 million motorcycles (MC) were registered in the United States. With the exception of light duty gasoline powered vehicles and trucks (less than 6,001 pounds gross vehicle weight), motorcycles are more abundant than other vehicle types.

A motorcycle is defined as any motor vehicle designed to travel with not more than three wheels in contact with the ground, and weighting less than 1,500 pounds.

The MC fleet is composed of six engine size-type combinations: small, medium, and large engine sizes, each size having two-stroke and four-stroke engine types. Small or Class I motorcycles have engine displacements in the 50 cubic centimeter (cc) through 169 cc range. Medium or Class II motorcycles have engine displacements in the 170 cc through 279 cc range. Large or Class III motorcycles have engine displacements in the 280 cc and over range.

As with other chapters, the MC emission factors are divided into three sections: Emissions, travel weighting fractions, and emission correction factors.

8.A.1 Test Procedure

With the exception of the Class I motorcycles, the MC basic exhaust emissions test procedure is identical to the LDGV test procedure. Therefore, with the one class exception, the summary of the test procedure in Chapter 1 is correct for the MCs. Given below is a list of Class I motorcycle test procedure summary statistics that differ from the LDGV test procedure.

1. Average speed is 17.8 mph.
2. Average percent VMT in cold start operation is 18.3%.
3. Average percent VMT in hot start operation is 24.2%.
4. Average percent VMT in the stabilized operation is 57.5%.
5. Average trip length is 6.8 miles.
6. Test segment #1 (cold start) and #3 (cold start) each have an average trip length of 2.89 miles and speed of 20.6 mph.
7. Test segment #2 (stabilized) has the average trip length of 3.91 miles and speed of 16.2 mph.

8.A.2 General Emissions Calculation Equations

The MC generalized equations are almost identical to the LDGV equations. The differences are three optional emission correction factors that are not applicable for MCs: air conditioning, extra load, and trailer towing. With these three exceptions, the MC emission factors calculating equations are identical to the LDGV equations given in Chapter 1.

8.B EMISSIONS

This section discusses the MC emission estimates: Basic exhaust emission rates, crankcase and evaporative HC emission levels, January 1 basic exhaust emission levels, and idle exhaust emission rates. The emission standards are given in Section A.1.5 of Appendix A. The emissions reflect motorcycles which have received typical in-use maintenance. Further, the motorcycles are not involved in an I/M program.

With the exception of the six engine size-type combinations being sales weighted, the discussions of the different emissions in Chapter 1 are also valid for the MCs. Therefore, the discussions will not be reiterated. Please refer to Chapter 1 for the discussions that correspond to the subsections below. Further, it is assumed that the MC emissions reflect exactly the standarized test conditions described in Chapter 1.

8.B.1 Basic Exhaust Emission Rates

The MC basic exhaust emission rates are given in Table 1.8.1A. This table presents the MC zero mile emission levels and emission deterioration rates for every model year. The emissions are measured in grams per mile.

8.B.2 Crankcase and Evaporative HC Emission Levels

The MC crankcase and evaporative HC emission levels are given in Table 1.8.1B. This table presents the emissions for every model year and emission component: diurnal losses, hot soak losses, and crankcase losses.

8.B.3 January 1 Basic Exhaust Emission Levels

January 1, 1970 through 1993, MC basic exhaust emisson levels are given in Table 1.8.2A through 1.8.2C for HC, CO, and NOx, respectively. The HC basic exhaust emission levels reflect total, rather than non-methane, HC emissions and exclude crankcase and evaporative HC levels.

8.B.4 Idle Exhaust Emission Rates (Hot Stabilized)

The MC hot stabilized idle exhaust emission rates are given in Table 1.8.3. These emissions are measured in grams per minute and reflect engines operating in a hot stabilized condition.

8.C TRAVEL WEIGHTING FRACTIONS

The MC travel weighting fractions are the individual model year proportions of the total MC VMT. To generate the MC travel weighting fractions, two distributions are required: (1) the fleet annual mileage accumulation rate distribution and (2) the registration distribution. These two distributions are given in Table 1.8.4. More detailed information is available in Chapter 1 on these distributions.

The travel weighting fractions in this document reflect a January 1 evaluation date. For the MCs, the model year is assumed to begin sales on January 1. Further, it is assumed that the motorcycles are sold and accumulate mileage according to a uniform distribution. These assumptions permit the estimation of the January 1 fleet mileage accumulation rate distribution and the January 1 registration distribution from July 1 information. The travel weighting fractions are given in Table 1.8.5.

8.D EMISSION CORRECTION FACTORS

The MC basic exhaust emission levels are typically based on test results under the standardized conditions defined in Chapter 1. However, the basic exhaust emission levels are affected by ambient and usage conditions which differ from the prescribed test procedure. The conditions under which emissions are known to vary are the average speed, ambient temperature, fraction of VMT in cold and hot start operating conditions, and humidity level. Emission correction factors are available to compensate for these varying conditions.

The MC emission correction factors are based on the LDGV information and the discussions in Chapter 1 are valid for MCs.

8.D.1 Speed Correction Factor

The test procedure used for collecting the basic exhaust emissions is typically a driving cycle with an average speed of 19.6 mph. For those situations where the average speed of the MC deviates from this value, a speed correction factor is applied. The MC speed emission correction factor is given in Table 1.8.6.

8.D.2 Emission Temperature Correction Factor

The established motorcycle emissions test procedure requires an ambient test temperature between 68°F and 86°F. For those situations where the ambient temperature is not in this range, an emission temperature correction factor is applied. Table 1.8.7A presents this correction factor for the MCs.

8.D.3 Speed/Temperature/Operating-Mode Emission Correction Factor

A single emission correction factor called Ripstwxn adjusts for speed, temperature, and operating-mode conditions that differ from the basic test procedure. As described in Chapter 1, Ripstwxn depends on normalized bag fractions. The MC normalized bag fractions are given in Table 1.8.7B.

8.D.4 NOx Humidity Correction Factor

The NOx emission factors are normalized to 75 grains of water per pound of dry air. In order to adjust NOx emissions to different humidity conditions, a multiplicative correction factor is available. The formula for the correction factor is given below, and is applicable for all model years:

HCF = 1.0 - .0047 * (H - 75)

where:

HCF = The NOx humidity corrector factor.

H = Humidity level in grains of water per pound of dry air ($20_{<}=H_{<}=140$).

PART TWO -- CALIFORNIA

Chapter 9

CALIFORNIA HIGHWAY MOBILE SOURCE EMISISON FACTORS

Compared to the rest of the nation, California highway mobile sources usually have different emission control regulations in effect. These regulations are given in Section A.2 of Appendix A. Although the emission standards are usually different for these California vehicle types, the test procedure, emission calculation equations, and emission factor section and subsection discussions are identical to those given in low altitude non-California chapters. Therefore, the discussions will not be repeated. To alter the eight preceding chapters to discuss the California emission factors, two basic changes are required: (1) Change the region prefix number in all tables from "1" to "2" and (2) change the reference Section A.1# to A.2# for Appendix A.

PART THREE -- HIGH ALTITUDE NON-CALIFORNIA

Chapter 10

HIGH ALTITUDE NON-CALIFORNIA HIGHWAY MOBILE SOURCE EMISSION FACTORS

Compared to the low altitude non-California region, the high altitude non-California highway mobile sources usually have no specific regulations. Generally, the high altitude vehicle types are the low altitude counterparts being operated at high altitude. There are a few exceptions which are given in Section A.1 of Appendix A.

The high altitude non-California highway mobile source emission factors are different from those of the low altitude sources. However, with one exception, the discussions in Chapters 1 through 8 can be used for the high altitude emission factors. The one exception is to change the region prefix number in all tables from "1" to "3". No further discussions will be made for the high altitude non-California highway mobile source emission factors.

Appendix A

NEW VEHICLE EMISSION STANDARDS

This appendix presents the emission standards assumed in this document. At the time of the MOBILE2 release, these were the past, present, and projected standards. However, it is possible that some of the assumed standards are now different due to changes in regulations, waivers, etc.

A.1 LOW AND HIGH ALTITUDE NON-CALIFORNIA HIGHWAY VEHICLE EMISSION STANDARDS

This section presents the emission standards for the eight low and high altitude non-California vehicle types. The standards are presented in five subsections. The light duty vehicle and light duty truck fleets are comprised of both diesel and gasoline powered vehicle types. Further, the LDGT2 standards are split among the two associated vehicle types. The pre-1979 model year LDGT2s are heavy duty vehicles while the 1979 and later model years are light duty trucks. Finally, the high altitude standards are included in this section since there are few emission standards specific to the high altitude vehicle types.

All hydrocarbon emission standards in this section are presented for total hydrocarbon emissions.

A.1.1 Light Duty Vehicles

The following standards, up through 1974, apply only to gasoline powered light duty vehicles. Standards for 1975 and later apply to both gasoline and diesel powered light duty vehicles[1].

Year	Test Procedure[2]	Hydro-carbons	Carbon Monoxide	Oxides of Nitrogen	Partic-ulates[3]	Evaporative[4] Hydrocarbons
Prior	7-mode	850 ppm	3.4%	1000 ppm	-	-
to	7-mode	11 gpm	80 gpm	4 gpm	-	-
controls	CVS-75	8.8 gpm	87.0 gpm	3.6 gpm	-	-
1968-69	7-mode					
	50-100 CID	410 ppm	2.3%	-	-	-
	101-140 CID	350 ppm	2.0%	-	-	-
	over 140 CID	275 ppm	1.5%	-	-	-
1970	7-mode	2.2 gpm	23 gpm	-	-	-
1971	7-mode	2.2 gpm	23 gpm	-	-	6.0 g/test[5]
1972	CVS-72	3.4 gpm	39 gpm	-	-	2.0 g/test
1973-74	CVS-72	3.4 gpm	39 gpm	3.0 gpm	-	2.0 g/test
1975-76	CVS-75	1.5 gpm	15 gpm	3.1 gpm	-	2.0 g/test
1977[6]	CVS-75	1.5 gpm	15 gpm	2.0 gpm	-	2.0 g/test
1978-79	CVS-75	1.5 gpm	15 gpm	2.0 gpm	-	6.0 g/test
1980	CVS-75	0.41 gpm	7.0 gpm	2.0 gpm	-	6.0 g/test
1981	CVS-75	0.41 gpm	3.4 gpm[7]	1.0 gpm[8,9]	-	2.0 g/test
1982[10]	CVS-75	0.41 gpm (0.57)	3.4 gpm[7] (7.8)	1.0 gpm[8,9] (1.0)[8]	0.6 gpm (-)	2.0 g/test (2.6)
1983[10]	CVS-75	0.41 gpm (0.57)	3.4 gpm (7.8)	1.0 gpm[8] (1.0)[8]	0.6 gpm (-)	2.0 g/test (2.6)
1984[11]	CVS-75	0.41 gpm (.41)	3.4 gpm (3.4)	1.0 gpm (1.0)	0.6 gpm (-)	2.0 g/test (2.6)
1985 & later[11]	CVS-75	0.41 gpm (.41)	3.4 gpm (3.4)	1.0 gpm (1.0)	0.2 gpm (-)	2.0 g/test (2.6)

LIGHT DUTY VEHICLES

1 Standards do not apply to vehicles with engines less than 50 CID from 1968 through 1974.

2 Different test procedures have been used since the early years of emission control which vary in stringency. The appearance that the standards were relaxed from 1971 to 1972 is incorrect. The 1972 standards are actually more stringent because of the greater stringency of the 1972 test procedure.

3 Applies only to diesels.

4 Evaporative emissions determined by carbon trap method through 1977, SHED procedure beginning in 1978. Applies only to gasoline-fueled vehicles.

5 Evaporative standard does not apply to off-road utility vehicles for 1971.

6 Cars sold in specified high altitude counties required to meet standards at high altitude.

7 Carbon monoxide standard can be waived to 7.0 gpm for 1981-82 by the EPA Administrator.

8 Oxides of nitrogen standard can be waived to 1.5 gpm for innovative technology or diesel.

9 Oxides of nitrogen standard can be waived to 2.0 gpm for American Motors Corporation.

10 Standards in parentheses apply to vehicles sold in specified high altitude counties. Vehicles eligible for a carbon monoxide waiver to 7.0 gpm at low altitude are eligible for a waiver to 11 gpm at high altitude.

11 Standards in parentheses apply to vehicles sold in specified high altitude counties. Further, these are the statutory standards according to the 1977 Clean Air Act amendments.

gpm - grams per mile
CID - cubic inch displacement
CVS-72 - constant volume sample cold start test
CVS-75 - constant volume sample test which includes cold and hot starts
7-mode - 137 second driving cycle test
ppm - parts per million

A.1.2 Light Duty Trucks

The following standards, up through 1975, apply only to gasoline powered light duty trucks. Standards for 1976 and later apply to both gasoline and diesel powered light duty trucks[1].

Year	Test Procedure[2]	Hydro-carbons	Carbon Monoxide	Oxides of Nitrogen	Partic-ulates[3]	Evaporative[4] Hydrocarbons
Prior	7-mode	850 ppm	3.4%	1000 ppm	-	-
to	7-mode	11 gpm	80 gpm	4 gpm	-	-
controls	CVS-75	8.8 gpm	87.0 gpm	3.6 gpm	-	-
1968-69	7-mode					
	50-100 CID	410 ppm	2.3%	-	-	-
	101-140 CID	350 ppm	2.0%	-	-	-
	over 140 CID	275 ppm	1.5%	-	-	-
1970	7-mode	2.2 gpm	23 gpm	-	-	-
1971	7-mode	2.2 gpm	23 gpm	-	-	6.0 g/test[5]
1972	CVS-72	3.4 gpm	39 gpm	-	-	2.0 g/test
1973-74	CVS-72	3.4 gpm	39 gpm	3.0 gpm	-	2.0 g/test
1975-77[6]	CVS-75	2.0 gpm	20 gpm	3.1 gpm	-	2.0 g/test
1978	CVS-75	2.0 gpm	20 gpm	3.1 gpm	-	6.0 g/test
1979-80[7]	CVS-75	1.7 gpm	18 gpm	2.3 gpm	-	6.0 g/test
1981	CVS-75	1.7 gpm	18 gpm	2.3 gpm	-	2.0 g/test
1982-83[8]	CVS-75	1.7 gpm (2.0)	18 gpm (26)	2.3 gpm (2.3)	0.6 gpm (-)	2.0 g/test (2.6)
1984[9]	CVS-75	0.8 gpm (0.8)	10 gpm (10)	2.3 gpm (2.3)	0.6 gpm (-)	2.0 g/test (2.6)
1985 & later[9]	CVS-75	0.8 gpm (0.8)	10 gpm (10)	0.9 gpm[10] (0.9)	0.26 gpm (-)	2.0 g/test (2.6)

LIGHT DUTY TRUCKS

1 Standards do not apply to trucks with engines less than 50 CID from 1968 through 1974.

2 Different test procedures have been used since the early years of emission control which vary in stringency. The appearance that the standards were relaxed from 1971 to 1972 is incorrect. The 1972 standards are actually more stringent because of the greater stringency of the 1972 test procedure.

3 Applies only to diesels.

4 Evaporative emissions determined by carbon trap method through 1977, SHED procedure beginning in 1978. Applies only to gasoline fueled trucks.

5 Evaporative standard does not apply to off-road utility trucks for 1971.

6 Trucks sold in specified high altitude counties required to meet standards at high altitude (1977 only).

7 Effective in 1979, light duty truck classification was extended from 0-6,000 pounds GVWR to 0-8,500 pounds GVWR.

8 Standards in parentheses apply to trucks sold in specified high altitude counties.

9 Standards in parentheses apply to trucks sold in specified high altitude counties. Further, these are assumed to be the statutory standards according to the 1977 Clean Air Act (CAA) amendments.

10 This is the 75 percent reduction NOx standard from the appropriate baseline as required by the 1977 CAA amendments. This standard is not expected to be the final one promulgated.

Additional Requirements

A CO standard of 0.47% at idle is established for 1984 and later model years.

gpm - grams per mile
CID - cubic inch displacement
CVS-72 - constant volume sample cold start test
CVS-75 - constant volume sample test which includes cold and hot starts
7-mode - 137 second driving cycle test
ppm - parts per million
GVWR - gross vehicle weight rating

A.1.3 Heavy Duty Gasoline Powered Engines and Vehicles

The following is a summary of gasoline powered heavy duty engine and vehicle standards[1].

Year	Hydro-carbons	Carbon Monoxide	Oxides of Nitrogen	Hydrocarbons + Oxides of Nitrogen	Evaporative Hydrocarbons[2]
1970-73	275 ppm	1.5%	-	-	-
1974-78	-	40 g/bhp-hr	-	16 g/bhp-hr	-
1979[3,4,5]	1.5 g/bhp-hr	25 g/bhp-hr	-	10 g/bhp-hr	-
	1.0 g/bhp-hr	25 g/bhp-hr	-	9.5 g/bhp-hr	-
	-	25 g/bhp-hr	-	5 g/bhp-hr	-
1980-83[3]	1.5 g/bhp-hr	25 g/bhp-hr	-	10 g/bhp-hr	-
	-	25 g/bhp-hr	-	5 g/bhp-hr	-
1984	1.3 g/bhp-hr	15.5 g/bhp-hr	10.7 g/bhp-hr	-	3.0 g/test
1985 & later	1.3 g/bhp-hr	15.5 g/bhp-hr	1.7 g/bhp-hr[6]		3.0 g/test

1 Test procedure for 1970-1983 standards is the 9-mode test procedure. Test procedure for 1984 and later is the transient test procedure.

2 Evaporative emissions determined by the SHED procedure.

3 Manufacturers may chose among the set of standards listed.

4 Standards of 1.0 HC, 25 CO, and 9.5 NOx are used if NDIR HC measurement method is used.

5 Effective in 1979, heavy duty vehicle classification was changed from 6,001 pounds and greater GVWR to 8,501 pounds and greater GVWR.

6 This is the 75 percent reduction (from appropriate baseline) NOx standard as required by the 1977 Clean Air Act amendments. This standard is not expected to be the final one promulgated.

Additional Requirements

A CO standard of 0.47% at idle is established for 1984 and later model years.

g/bhp-hr - grams per brake horsepower-hour
ppm - parts per million
9-mode test procedure - gasoline engine dynamometer test with 9 steady-state test points
transient test procedure - engine dynamometer procedure with stops, starts and speed/load changes.
GVWR - Gross vehicle weight rating.
NDIR - Non-dispersive infrared.

A.1.4 Heavy Duty Diesel Powered Engines and Vehicles

The following is a summary of diesel powered heavy duty engine and vehicle standards[1].

Year	Hydro-carbons	Carbon Monoxide	Oxides of Nitrogen	Hydro-carbons + Oxides of Nitrogen	Partic-ulates	Smoke
1970-73	-	-	-	-	-	ACCEL 40% LUG 20% opacity
1974-78	-	40	-	16	-	ACCEL 20% LUG 15% PEAK 20% opacity
1979-83[2]	1.5 -	25 25	- -	10 5	- -	ACCEL 20% LUG 15% PEAK 50% opacity
1984[3]	1.3 0.5	15.5 15.5	10.7 9.0	- -	- -	ACCEL 20% LUG 15% PEAK 50% opacity
1985 & later	1.3	15.5	1.7[4]	-	-	ACCEL 20% LUG 15% PEAK 50% opacity

1 Test procedure for 1970-1983 standards is the 13-mode test procedure. Test procedure for 1984 and later is the transient test procedure. Both test procedures measure in grams per brake horsepower-hour.

2 Effective in 1979 the heavy duty vehicle classification was changed from 6,001 pounds and greater GVWR to 8,501 pounds and greater GVWR.

3 Standards of 0.5 HC, 15.5 CO, and 9.0 NOx are optional standards for 1984 diesels tested on the 13-mode test procedure.

4 This is the 75 percent reduction (from appropriate baseline) NOx standard as required by the 1977 Clean Air Act amendments. This standard is not expected to be the final one promulgated.

g/bhp-hr - grams per brake horsepower-hour
ppm - parts per million
13-mode test procedure - gasoline engine dynamometer test with 13 steady-state speed/load points
transient test procedure - engine dynamometer procedure with stops, starts and speed/load changes.
GVWR - Gross vehicle weight rating.

A.1.5 Motorcycles

The following is a summary of motorcycle standards.

Year	Displacement[1]	Hydrocarbons	Carbon Monoxide
1978-79	50-169	5.0 g/km	17 g/km
	170-749	5.0 + 0.0155(D-170) g/km[2]	17 g/km
	750 & larger	14 g/km	17 g/km
1980 & later	All (50 & larger)	5.0 g/km	12 g/km

1 Displacement shown in cubic centimeters

2 Motorcycle Hydrocarbon Formula

D = engine displacement in cubic centimeters
e.g., 300 cc engine --
HC Standard = (300-170) X .0155 + 5.0 = 7.0 g/km

g/km - grams per kilometer

A.2 CALIFORNIA HIGHWAY VEHICLE EMISSIONS STANDARDS

This section presents the emission standards for the eight California vehicle types. The standards are presented in five subsections since the light duty vehicles, light duty trucks, and heavy duty vehicles are all comprised of both gasoline and diesel powered vehicle types. Unless otherwise noted, the hydrocarbon standards in this section are presented for total hydrocarbon emissions.

A.2.1 Light Duty Vehicles

The following California standards, up through 1979, apply only to gasoline powered passenger cars[1]. California standards for 1980 and later apply both gasoline powered and diesel powered passenger cars.

Year	Test Procedure	Hydro-carbons	Carbon Monoxide	Oxides of Nitrogen	Partic-ulates[13]	Evaporative Hydrocarbons[14]
prior to controls	7-mode	850 ppm	3.4%	1000 ppm	-	-
	7-mode	11 g/mi	80 g/mi	4 g/mi	-	-
	CVS-75	8.8 g/mi	87.0 g/mi	3.6 g/mi	-	-
1966-67	7-mode	275 ppm	1.5%	-	-	-
1968-69	7-mode					
	50-100 CID	410 ppm	2.3%	-	-	-
	101-140 CID	350 ppm	2.0%	-	-	-
	over-141 CID	275 ppm	1.5%	-	-	-
			(GRAMS PER MILE)			
1970	7-mode	2.2	23	-	-	6.0 g/test
1971	7-mode	2.2	23	4.0	-	6.0 g/test
1972	7-mode or	1.5	23	3.0	-	2.0 g/test
	CVS-72	3.2	39	3.2[2]	-	2.0 g/test
1973	CVS-72	3.2	39	3.0	-	2.0 g/test
1974	CVS-72	3.2	39	2.0	-	2.0 g/test
1975-76	CVS-75	0.9[3]	9.0	2.0	-	2.0 g/test
1977	CVS-75	0.41	9.0	1.5	-	2.0 g/test
1978-79	CVS-75	0.41	9.0	1.5	-	6.0 g/test

EXHAUST EMISSION STANDARDS
CVS-75 Test Procedure
(GRAMS PER MILE)

Year	Standard	Hydrocarbons[4] Non-Methane	Hydrocarbons[4] Total HC	Carbon Monoxide	Oxides of Nitrogen	Particulates	Evaporative Hydrocarbons
1980	50,000	0.39	(0.41)	9.0	1.0[8]	-	2.0 g/test
	100,000 Option 1 [6,7]	0.39	(0.41)	9.0	1.5	-	2.0 g/test
	100,000 Option 2 [6,7]	0.46	-	10.6	1.5	-	2.0 g/test
1981	50,000 Option A[5]	-	(0.41)	3.4	1.0[8]	-	2.0 g/test
	50,000 Option B[5]	0.39	(0.41)	7.0	0.7[8]	-	2.0 g/test
	100,000 Option 1 [6,7]	0.39	-	3.4	1.5	-	2.0 g/test
	100,000 Option 2 [6,7]	0.46	-	4.0	1.5	-	2.0 g/test
1982	50,000 Option A[5]	0.39	(0.41)	7.0	0.4[9,10]	0.6	2.0 g/test
	50,000 Option B[5]	0.39	(0.41)	7.0	0.7[9,10]	0.6	2.0 g/test
	100,000 Option 1 [6]	-	(0.41)	7.0	1.0[11]	0.6	2.0 g/test
	100,000 Option 2 [6]	0.46	-	8.3	1.0[11]	0.6	2.0 g/test
1983-1984	50,000	0.39	(0.41)	7.0	0.4[12]	0.6	2.0 g/test
	100,000 Option 1[6]	0.39	(0.41)	7.0	1.0	0.6	2.0 g/test
	100,000 Option 2[6]	0.46	-	8.3	1.0	0.6	2.0 g/test
1985& later	50,000	0.39	(0.41)	7.0	0.4[12]	0.2	2.0 g/test
	100,000 Option 1[6]	0.39	(0.41)	7.0	1.0	0.2	2.0 g/test
	100,000 Option 2[6]	0.46	-	8.3	1.0	0.2	2.0 g/test

1 Passenger car as defined in Title 13 of the California Administrative Code means any motor vehicle designed primarily for transportation of persons having a capacity of twelve persons or fewer.

2 Hot 7-mode test.

3 Hydrocarbon emissions from 1975-76 limited production vehicles may not exceed 1.5 gm/mi.

4 Hydrocarbon standards in parentheses indicate total hydrocarbons. When applicable, manufacturers may elect to certify vehicle to either the non-methane or total hydrocarbon standards.

5 For the 1981 model year, manufacturers may choose either option A or B for their entire 50,000 mile certified product line. The option chosen in 1981 must be retained for the 1982 model year.

6 100,000 mile options: Option 1 standards refer to the projected 50,000 mile emissions for hydrocarbons and carbon monoxide while Option 2 standards refer to the projected 100,000 mile emissions for these pollutants. NOx emission standards for both options refer to the 100,000 mile projected emissions.

7 For vehicles with evaporative emission values below 1.0 g/test, an adjustment to the exhaust hydrocarbon emissions standard may be granted by the Executive Officer (100,000 mile option only).

8 1.5 g/mi NOx standard for small manufacturers subject to "in lieu" standards pursuant to Section 1960.3 of Title 13, California Administrative Code. Production passenger cars must meet a 1.0 g/mi cumulative corporate average NOx standard based on a full year's production.

9 1.0 g/mi NOx standard for small manufacturers subject to "in lieu" standards pursuant to Section 1960.3 of Title 13, California Administrative Code. Production passenger cars must meet a 0.7 g/mi cumulative corporate average NOx standard for the full 1982 model year production.

10 1.2 g/mi NOx standard for diesel powered passenger cars.

11 1.5 g/mi NOx standard for turbocharged diesel powered passenger cars.

12 0.7 g/mi NOx standard for the 1983 and 1984 model years for small manufacturers subject to "in lieu" standards pursuant to Section 1960.3 of Title 13, California Administrative Code. Production passenger cars must meet a 0.7 g/mi cumulative corporate average NOx standard for each production quarter. For 1985 and subsequent model years a small manufacturer must meet a 0.4 g/mi NOx standard for the prototype vehicle certification and for production vehicles per engine family on a quarterly basis.

13 Applies only to diesels.

14 Evaporative emissions determined by carbon trap method through 1977, SHED procedure beginning in 1978. Applies only to gasoline fueled vehicles.

Other Requirements

Beginning with the 1980 model year, the maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test shall be no greater than 1.33 times the applicable passenger car oxides of nitrogen standards shown above.

g/mi - grams per mile.
CVS-72 - constant volume sample cold start test.
CVS-75 - constant volume sample test which includes cold and hot starts.
7-mode - 137 second driving cycle test.
ppm - parts per million.

A.2.2 Light Duty Trucks

The following California standards, up through 1977, apply only to gasoline powered light duty trucks[1]. California standards for 1978 and later apply to both gasoline and diesel powered light duty trucks.

Year	Standard	Test Procedure	Hydro-carbons	Carbon Monoxide	Oxides of Nitrogen	Partic-ulates[11]	Evaporative Hydrocarbons[12]
1966-67	50,000	7-mode	275 ppm	1.5%	-	-	-
1968-69	50,000	7-mode					
	50,000	50-100 CID	410 ppm	2.3%	-	-	-
	50,000	101-140 CID	350 ppm	2.0%	-	-	-
	50,000	over-140 CID	275 ppm	1.5%	-	-	-
			(GRAMS PER MILE)				
1970	50,000	7-mode	2.2	23	-	-	6.0 g/test
1971	50,000	7-mode	2.2	23	4.0	-	6.0 g/test
1972	50,000	7-mode or	1.5	23	3.0	-	2.0 g/test
		CVS-72	3.2	39	3.2[2]	-	2.0 g/test
1973	50,000	CVS-72	3.2	39	3.0	-	2.0 g/test
1974	50,000	CVS-72	3.2	39	2.0	-	2.0 g/test
1975	50,000	CVS-75	2.9	20	2.0	-	2.0 g/test
1976-77	50,000	CVS-75	0.9	17	2.0	-	2.0 g/test
1978	50,000	CVS-75	0.9	17	2.0	-	6.0 g/test
1979	50,000[3]	CVS-75	0.41	9.0	1.5[5]	-	6.0 g/test
	50,000[4]	CVS-75	0.50	9.0	2.0	-	6.0 g/test

EXHAUST EMISSION STANDARDS
CVS-75 Test Procedure
(Grams Per Mile)

Light Duty Trucks

Year	Standard	Hydrocarbons[7] Non-Methane	Hydrocarbons[7] Total HC	Carbon Monoxide	Oxides of Nitrogen	Particulates	Evaporative Hydrocarbons
1980	50,000[3]	0.39	(0.41)	9.0	1.5[5]	-	2.0 g/test
	50,000[4]	0.50	(0.50)	9.0	2.0	-	2.0 g/test
1981	50,000[3]	0.39	(0.41)	9.0	1.0[6]	-	2.0 g/test
	100,000 Option 1[3,8,9]	0.39	(0.41)	9.0	1.5	-	2.0 g/test
	100,000 Option 2[3,8,9]	0.46	-	10.6	1.5	-	2.0 g/test
	50,000[4]	0.50	(0.50)	9.0	1.5	-	2.0 g/test
	100,000[4]	0.50	(0.50)	9.0	2.0	-	2.0 g/test
1982	50,000[3]	0.39	(0.41)	9.0	1.0[6]	0.6	2.0 g/test
	100,000 Option 1[3,8]	0.39	(0.41)	9.0	1.5	0.6	2.0 g/test
	100,000 Option 2[3,8]	0.46	-	10.6	1.5	0.6	2.0 g/test
	50,000[4]	0.50	(0.50)	9.0	1.5	0.6	2.0 g/test
	100,000[4]	0.50	(0.50)	9.0	2.0	0.6	2.0 g/test
1983-1984	50,000[3]	0.39	(0.41)	9.0	0.4[10]	0.6	2.0 g/test
	100,000 Option 1[3,8]	0.39	(0.41)	9.0	1.0	0.6	2.0 g/test
	100,000 Option 2[3,8]	0.46	-	10.6	1.0	0.6	2.0 g/test
	50,000[4]	0.50	(0.50)	9.0	1.0	0.6	2.0 g/test
	100,000[4]	0.50	(0.50)	9.0	1.5	0.6	2.0 g/test
1985& later	50,000[3]	0.39	(0.41)	9.0	0.4[10]	0.26	2.0 g/test
	100,000 Option 1[3,8]	0.39	(0.41)	9.0	1.0	0.26	2.0 g/test
	100,000 Option 2[3,8]	0.46	-	10.6	1.0	0.26	2.0 g/test
	50,000[4]	0.50	(0.50)	9.0	1.0	0.26	2.0 g/test
	100,000[4]	0.50	(0.50)	9.0	1.5	0.26	2.0 g/test

1 Light duty truck as defined by Title 13 of the California Administrative Code means any motor vehicle rated at 6,000 lbs. GVW or less which is designed primarily for purposes of transportation of property or is a derivative of such vehicle, or is available with special features enabling off-street or off-highway operation and use.

2 Hot 7-mode test.

3 0-3,999 pounds equivalent inertia weight (curb weight plus 300 pounds).

4 4,000-6,000 pounds equivalent inertia weight.

5 2.0 g/mi NOx for four-wheel drive vehicles in this category.

6 1.5 g/mi NOx for small manufacturers subject to "in lieu" standards pursuant to Section 1960.3 of Title 13, California Administrative

Code. Production light duty trucks must meet a 1.0 g/mi cumulative corporate average NOx standard based upon a full year's production.

7 Hydrocarbon standards in parentheses indicate total hydrocarbons. When applicable, manufacturers may elect to certify trucks to either the non-methane or total hydrocarbon standards.

8 100,000 mile options: Option 1 standards refer to the projected 50,000 mile emissions for hydrocarbons and carbon monoxide while Option 2 standards refer to the projected 100,000 mile emissions for these pollutants. NOx emission standards for both options refer to the 100,000 mile projected emissions.

9 For vehicles with evaporative emission values below 1.0 g/test, an adjustment to the exhaust hydrocarbon emissions standard may be granted by the Executive Officer (100,000 mile option only).

10 1.0 g/mi NOx standard for small manufacturers subject to "in lieu" standards pursuant to Section 1960.3 of Title 13, California Administrative Code. Production light duty trucks must meet a 0.7 g/mi cumulative corporate average NOx standard based on a full year's production.

0.7 g/mi NOx standard for small manufacturers for the 1984 and 1985 model years. Production light duty trucks must meet a 0.7 g/mi cumulative corporate average NOx standard for each production quarter.

For the 1986 and subsequent model years a small manufacturer must meet a 0.4 g/mi NOx standard for the prototype vehicle certification and for production vehicles per engine family on a quarterly basis.

11 Applies only to diesels.

12 Evaporative emissions determined by carbon trap method through 1977, SHED procedure beginning in 1978. Applies only to gasoline fueled vehicles.

g/mi - grams per mile.
CVS-72 - constant volume sample cold start test.
CVS-75 - constant volume sample test which includes cold and hot starts.
7-mode - 137 second driving cycle test.
ppm - parts per million.

Other Requirements

Beginning with the 1981 model year, the maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test shall be no greater than 2.0 times the applicable light duty truck oxides of nitrogen standards shown above.

A.2.3 Light Duty Trucks (Medium Duty Trucks)

The following California standards, up through 1972, apply only to gasoline powered medium duty trucks[1]. California standards for 1973 and later years apply to both gasoline and diesel powered medium duty trucks.

Year	Standard	Hydrocarbons[5] Non-Methane	Hydrocarbons[5] Total HC	Carbon Monoxide	Oxides of Nitrogen	Particulates[10]	Evaporative Hydrocarbons[11]
1969-77		SEE HEAVY DUTY STANDARDS					
	CVS-75 Test Procedure	(GRAMS PER MILE)					
1978	50,000[2]	-	(0.9)	17	2.3	-	6.0 g/test
1979	50,000[2]	-	(0.9)	17	2.3	-	6.0 g/test
1980	50,000[2]	0.9	(0.9)	17	2.3	-	2.0 g/test
1981	50,000[2]	0.39	(0.41)	9.0	1.0[8]	-	2.0 g/test
	100,000 Option 1[2,6,7]	0.39	(0.41)	9.0	1.5	-	2.0 g/test
	100,000 Option 2[2,6,7]	0.46	-	10.6	1.5	-	2.0 g/test
	50,000[3]	0.50	(0.50)	9.0	1.5	-	2.0 g/test
	100,000[3]	0.50	(0.50)	9.0	2.0	-	2.0 g/test
	50,000[4]	0.60	(0.60)	9.0	2.0	-	2.0 g/test
	100,000[4]	0.60	(0.60)	9.0	2.3	-	2.0 g/test
1982	50,000[2]	0.39	(0.41)	9.0	1.0[8]	0.6	2.0 g/test
	100,000 Option 1[2,6]	0.39	(0.41)	9.0	1.5	0.6	2.0 g/test
	100,000 Option 2[2,6]	0.46	-	10.6	1.5	0.6	2.0 g/test
	50,000[3]	0.50	(0.50)	9.0	1.5	0.6	2.0 g/test
	100,000[3]	0.50	(0.50)	9.0	2.0	0.6	2.0 g/test
	50,000[4]	0.60	(0.60)	9.0	2.0	0.6	2.0 g/test
	100,000[4]	0.60	(0.60)	9.0	2.3	0.6	2.0 g/test
1983-84	50,000[2]	0.39	(0.41)	9.0	0.4[9]	0.6	2.0 g/test
	100,000 Option 1[2,6]	0.39	(0.41)	9.0	1.0	0.6	2.0 g/test
	100,000 Option 2[2,6]	0.46	-	10.6	1.0	0.6	2.0 g/test
	50,000[3]	0.50	(0.50)	9.0	1.0	0.6	2.0 g/test
	100,000[3]	0.50	(0.50)	9.0	1.5	0.6	2.0 g/test
	50,000[4]	0.60	(0.60)	9.0	1.5	0.6	2.0 g/test
	100,000[4]	0.60	(0.60)	9.0	2.0	0.6	2.0 g/test
1985& later	50,000[2]	0.39	(0.41)	9.0	0.4[9]	0.26	2.0 g/test
	100,000 Option 1[2,6]	0.39	(0.41)	9.0	1.0	0.26	2.0 g/test
	100,000 Option 2[2,6]	0.46	-	10.6	1.0	0.26	2.0 g/test
	50,000[3]	0.50	(0.50)	9.0	1.0	0.26	2.0 g/test
	100,000[3]	0.50	(0.50)	9.0	1.5	0.26	2.0 g/test
	50,000[4]	0.60	(0.60)	9.0	1.5	0.26	2.0 g/test
	100,000[4]	0.60	(0.60)	9.0	2.0	0.26	2.0 g/test

1 Medium duty truck as defined by Title 13 of the California Administrative Code means any heavy duty vehicle having a manufacturer's gross vehicle weight rating of 6,001 through 8,500 pounds (Manufacturers may elect to certify medium duty trucks up to 10,000 pounds GVW).

2 0-3,999 pounds equivalent inertia weight (curb weight plus 300 pounds).

3 4,000-6,000 pounds equivalent inertia weight.

4 6,001-8,500 (or 10,000) pounds equivalent inertia weight.

5 Hydrocarbon standards in parentheses indicate total hydrocarbons. When applicable, manufacturers may elect to certify trucks to either the non-methane or total hydrocarbon standards.

6 100,000 mile options: Option 1 standards refer to the projected 50,000 mile emissions for hydrocarbons and carbon monoxide while Option 2 standards refer to the projected 100,000 mile emissions for these pollutants. NOx emission standards for both options refer to the 100,000 mile projected emissions.

7 For vehicles with evaporative emission values below 1.0 g/test, an adjustment to the exhaust hydrocarbon emissions standard may be granted by the Executive Officer (100,000 mile option only).

8 1.5 g/mi NOx for small manufacturers subject to "in lieu" standards pursuant to Section 1960.3 of Title 13, California Administrative Code. Production medium duty trucks must meet a 1.0 g/mi cumulative corporate average NOx standard based on a full year's production.

9 1.0 g/mi NOx standard for small manufacturers subject to "in lieu" standards pursuant to Section 1960.3 of Title 13, California Administrative Code. Production medium duty trucks must meet a 0.7 g/mi cumulative corporate average NOx standard for the full model year's production.

0.7 g/mi NOx standard for small manufacturers for the 1984 and 1985 model years. Production medium duty trucks must meet a 0.7 g/mi cumulative corporate average NOx standard for each production quarter.

For the 1986 and subsequent model years a small manufacturer must meet a 0.4 g/mi NOx standard for the prototype vehicle certification and for production vehicles per engine family on a quarterly basis.

10 Applies only to diesels.

11 Evaporative emissions determined by carbon trap method through 1977, SHED procedure beginning in 1978. Applies only to gasoline fueled vehicles.

g/mi - grams per mile.
CVS-75 - constant volume sample test which includes cold and hot starts.

Other Requirements

Beginning with the 1981 model year, the maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test shall be no greater than 2.0 times the applicable medium duty truck oxides of nitrogen standards shown above.

A.2.4 Heavy Duty Engines and Vehicles (Diesel and Gasoline Powered)

The following is a summary of heavy duty engine and vehicle[1] standards, based on the 9-mode test procedure for gasoline engines and the 13-mode test procedure for diesel engines[2].

Year	Hydrocarbons	Carbon Monoxide	Oxides of Nitrogen	Hydrocarbons + Oxides of Nitrogen	Particulates[5]	Evaporative Hydrocarbons[6]
1969-71[3]	275 ppm	1.5%	-	-	-	-
1972	180 ppm	1.0%	-	-	-	-
			(GRAMS PER BRAKE-HORSEPOWER-HOUR)			
1973-74	-	40	-	16	-	2.0 g/test
1975-76	-	30	-	10	-	2.0 g/test
1977	-	25	-	5	-	2.0 g/test
	1.0	25	7.5	-	-	2.0 g/test
1978	-	25	-	5	-	6.0 g/test
	1.0	25	7.5	-	-	6.0 g/test
1979[4]	1.5	25	7.5	-	-	6.0 g/test
	-	25	-	5	-	6.0 g/test
	1.0	25	7.5	5	-	6.0 g/test
1980-83	1.0	25	-	6.0	-	2.0 g/test
	-	25	-	5	-	2.0 g/test
1984 & later	0.5	25	-	4.5	-	2.0 g/test

1 These standards apply to motor vehicles having a manufacturer's GVW rating of over 6000 pounds, excluding passenger cars and 1978 and later medium duty trucks.

2 The above standards apply to diesel engines and vehicles sold in California on or after January 1, 1973.

3 Applies to vehicles manufactured on or after January 1, 1969.

4 For 1979 only, manufacturer using heated flame ionization detection (HFID) method for measuring hydrocarbons must meet the 1.5 g/bhp-hr standard. Whereas manufacturers using non-dispersive infrared (NDIR) method of measuring hydrocarbons must meet the 1.0 g/bhp-hr standard. Both standards are equivalent in stringency. Manufacturers may use either HFID or NDIR in meeting the combined hydrocarbon and oxides of nitrogen standard of 5 g/bhp-hr. After 1979, manufacturers are required to use HFID.

5 Applies only to diesels.

6 Evaporative emissions determined by carbon trap method through 1977, SHED procedure beginning in 1978. Applies only to gasoline fueled vehicles.

g/bhp-hr - grams per brake-horsepower-hour
ppm - parts per million.

A.2.5 Motorcycles

The following is a summary of motorcycle[1] standards.

Year	Displacement[2,4]	Hydrocarbons	Carbon Monoxide	Evaporative Hydrocarbons[5]
1978-79	50-169	5.0 g/km	17 g/km	-
	170-749	5.0 + 0.0155 (D-170) g/km[3]	17 g/km	-
	750 or greater	14 g/km	17 g/km	
1980-81	All (50 or greater)	5.0 g/km	12 g/km	-
1982	Class I & II	1.0 g/km	12 g/km	-
	Class III	2.5 g/km	12 g/km	-
1983	Class I & II	1.0 g/km	12 g/km	6.0 g/test
	Class III	2.5 g/km	12 g/km	-
1984	Class I & II	1.0 g/km	12 g/km	6.0 g/test
	Class III	1.0 g/km	12 g/km	6.0 g/test
1985	Class I & II	1.0 g/km	12 g/km	2.0 g/test
	Class III	1.0 g/km	12 g/km	6.0 g/test
1986 & later	All (50 or greater)	1.0 g/km	12 g/km	2.0 g/test

1 Any motor vehicle other than a tractor having a seat or saddle for use of the rider and designed to travel on not more than three wheels in contact with the ground and weighing less than 1500 pounds, except that four wheels may be in contact with the ground when two of the wheels function as a sidecar.

2 Displacement shown in cubic centimeters.

3 Motorcycle Hydrocarbon Formula

D = engine displacement in cubic centimeters
e.g., 300 cc engines -- standard = (300-170)X.0155 + 5.0 = 7.0 g/km

4 Federal classifications based on engine displacement are as follows:

Class	Displacement
I	50-169 cc
II	170-279 cc
III	280 + cc

5 Evaporative emissions determined by the SHED procedure.

g/km = grams per kilometer

Appendix B

CALCULATION OF THE VMT MIX

The proportion of the total vehicle-miles-traveled (VMT) driven by a given vehicle type depends entirely on (a) the number of vehicles, (b) the model year registration distribution, and (c) the mileage accumulation rate distribution. Also, as light duty diesel powered vehicles and trucks become a larger proportion of their respective fleets, their VMT proportions will increase. As the diesel powered vehicle type VMT fractions increase, the corresponding gasoline powered vehicle type VMT fractions will decrease.

The MOBILE2 computer program calculates the VMT mix; unless a user inputs locality specific information. The calculation procedure is based on the estimated number of vehicles and the average annual miles driven for each vehicle type. The product of these two variables estimates the total miles driven on January 1 of a calendar year for each vehicle type. By performing this calculation for each vehicle type and summing the results, the total miles driven on January 1 for the entire highway mobile source fleet are estimated. Finally, by normalizing the individual vehicle type total miles, the VMT fractions are estimated.

Specifically, the MOBILE2 computer program performs the calculations in subprogram TFCALX with the following equations:

$$MILES(IV) = VCOUNT(IV)*DAF(IV)*TFNORM(IV)$$
$$TOTVMT = SUMiv[MILES(IV)]$$
$$VMTMIX(IV) = MILES(IV)/TOTVMT$$

where

TOTVMT is the total miles traveled by the entire highway mobile source fleet.

IV is the vehicle type index (1 = LDGV, 2 = LDGT1, 3 = LDGT2, 4 = HDGV, 5 = LDDV, 6 = LDDT, 7 = HDDV, and 8 = MC).

VMTMIX(IV) is the estimated VMT fraction for vehicle type IV.

VCOUNT(IV) is the estimated vehicle count for vehicle type IV based on 1978 registrations. To use the dieselization rates, VCOUNT(1) = VCOUNT(5) and VCOUNT(2) = VCOUNT(6). This implies that the LDDVs and LDGVs are combined to become the light duty vehicle fleet. Similarly, the LDGT1s and LDDTs are combined to become the light duty truck fleet. Both the light duty vehicle and truck fleets are adjusted by fleet sales fractions to separate the diesel from the gasoline powered vehicles/trucks.

DAF(IV) is the dieselization rate adjustment factor for vehicle type IV. DAF(3) = DAF(4) = DAF(7) = DAF(8) = 1.0; which implies no dieselization adjustments are made for these

vehicle types. These values are illustrated in each table .5 of Appendix E (denoted as DAF at the bottom of the A*B column).

TFNORM(IV) is the registration weighted average of annual miles driven by each vehicle of vehicle type IV. The values are illustrated in each table .5 of Appendix E (denoted as TFNORM at the bottom of the C*D column).

MILES(IV) is the estimated miles driven by vehicle type IV.

SUMiv is the summation over the eight vehicle types.

An example of the VMT mix calculation follows. This example is based on information readily available. Using the example travel weighting factor calculation tables and the 1978 registration counts[1], the VMT mix example for January 1, 1985 follows:

VCOUNT(1) = 102.9 x 10^6
VCOUNT(2) = 12.9 x 10^6
VCOUNT(3) = 5.7 x 10^6
VCOUNT(4) = 4.7 x 10^6
VCOUNT(5) = 102.9 x 10^6
VCOUNT(6) = 12.9 x 10^6
VCOUNT(7) = 1.0 x 10^6
VCOUNT(8) = 7.3 x 10^6

DAF(1) = .915/(.915 + .037) = .961
DAF(2) = .900/(.900 + .035) = .963
DAF(3) = 1.0
DAF(4) = 1.0
DAF(5) = .037/(.915 + .037) = .039
DAF(6) = .035/(.900 + .035) = .037
DAF(7) = 1.0
DAF(8) = 1.0

TFNORM(1) = 11507.9
TFNORM(2) = 9656.6
TFNORM(3) = 12291.9
TFNORM(4) = 13550.2
TFNORM(5) = 13353.6
TFNORM(6) = 14512.8
TFNORM(7) = 50037.0
TFNORM(8) = 1924.0

[1] EEA Report, National MOBILE2 Variable Estimates, November 1980. The work was performed by EEA for EPA under EPA Contract NO. 68-03-2888.

MILES(1) = 102.9 x 10^6 x .961 x 11507.9 = 1,137,981 x 10^6
MILES(2) = 12.9 x 10^6 x .963 x 9656.6 = 119,961 x 10^6
MILES(3) = 5.7 x 10^6 x 1.0 x 12291.9 = 70,064 x 10^6
MILES(4) = 4.7 x 10^6 x 1.0 x 13550.2 = 63,686 x 10^6
MILES(5) = 102.9 x 10^6 x .039 x 13353.6 = 53,589 x 10^6
MILES(6) = 12.9 x 10^6 x .037 x 14512.8 = 6,927 x 10^6
MILES(7) = 1.0 x 10^6 x 1.0 x 50037.0 = 50,037 x 10^6
MILES(8) = 7.3 x 10^6 x 1.0 x 1924.0 = 14,045 x 10^6
TOTVMT = 1,516,290 x 10^6

VMTMIX(1) = 1,137,981 / 1,516,290 = 0.751
VMTMIX(2) = 119,961 / 1,516,290 = 0.079
VMTMIX(3) = 70,064 / 1,516,290 = 0.046
VMTMIX(4) = 63,686 / 1,516,290 = 0.042
VMTMIX(5) = 53,589 / 1,516,290 = 0.035
VMTMIX(6) = 6,927 / 1,516,290 = 0.005
VMTMIX(7) = 50,037 / 1,516,290 = 0.033
VMTMIX(8) = 14,045 / 1,516,290 = 0.009

Appendix C

CALCULATION PROCEDURE TO COMBINE THE EMISSION RESULTS OF THE TWO LIGHT DUTY GASOLINE POWERED TRUCK CLASSES

Frequently air quality analyses require the use of one light duty gasoline powered truck vehicle type as opposed to two. However, emission factors are presented for two truck types: LDGT1 and LDGT2. As a result, a procedure has been developed which will combine the two truck types. This appendix describes this procedure. The procedure simply combines the calculated emission factors of each truck type on the basis of VMT. To illustrate this, a hypothetical example is used.

Suppose that on January 1, 1985, the LDGT1 and LDGT2 calculated CO emission factors are 32.57 and 22.09 grams/mile; respectively. Further, assume that the LDGT1 and LDGT2 proportions of the total fleet VMT are 7.9 percent and 4.6 percent; respectively. Finally assume that the entire fleet travels 4.1 billion miles.

From this example it is obvious that the combined truck types travel the following miles on January 1, 1985:

$$(4.1 \times 10^9 \text{ miles})\ (.079) + (4.1 \times 10^9 \text{ miles})\ (.046)$$

Further, the total grams emitted by the combined truck types are as follows:

$$(4.1 \times 10^9 \text{ miles})\ (.079)\ (32.57 \text{ g/mi}) + (4.1 \times 10^9 \text{ miles})\ (.046)\ (22.09 \text{ g/mi})$$

As a result, the calculated CO gram/mile emission factor estimate for the combined truck type is as follows (total grams/total miles):

$$\frac{(4.1 \times 10^9 \text{ miles})\ (.079)\ (32.57 \text{ g/mi}) + (4.1 \times 10^9 \text{ miles})\ (.046)\ (22.09 \text{ g/mi})}{(4.1 \times 10^9 \text{ miles})\ (.079) + (4.1 \times 10^9 \text{ miles})\ (.046)}$$

or,

$$\frac{(.079)\ (32.57 \text{ g/mi}) + (.046)\ (22.09 \text{ g/mi})}{(.079) + (.046)}$$

After simplifying the equation it becomes obvious that the combined LDGT vehicle type is a function of the calculated emission factors and the VMT fractions. The more generalized formula is as follows:

$$\frac{VMT(LDGT1) \times EF(LDGT1) + VMT(LDGT2) \times EF(LDGT2)}{VMT(LDGT1) + VMT(LDGT2)}$$

Appendix D

METHODOLOGY FOR CALCULATING JANUARY 1 TRAVEL WEIGHTING INFORMATION AND FLEET AVERAGE MILEAGE ACCUMULATION

This appendix describes the derivation of January 1 registration distributions, the annual rate of mileage accrual for the fleets, and the fleet average mileage accumulation distributions. The January 1 registration and annual rate of mileage accrual distributions are used in the calculation of travel weighting fractions. The fleet average mileage accumulation distributions are used to estimate the January 1 emission levels by model year.

D.1 JANUARY 1 TRAVEL WEIGHTING INFORMATION

The travel weighting fractions for a given vehicle type are the individual model year proportions of the total VMT for the vehicle type. To generate the travel weighting fractions, typically three distributions are required: (1) the annual mileage accrual rate per vehicle by age distribution, (2) the registration distribution, and (3) the fleet sales fraction distribution (to account for the influx of diesels).

D.1.1 January 1 Registration Distribution Transformations

A portion of the January 1 travel fraction calculation procedure is to estimate the January 1 model year registration distribution for each vehicle type. The model year registration distribution, frequently referred to as the registration mix, begins with all model years combined for a given vehicle type and apportions them into their appropriate model year index (except for model year index 20 which represents all model years that were built 20 or more model years ago). At this phase of the registration mix development, the LDV and LDT model year registration distributions are composed of both the gasoline and diesel powered vehicle types.

For the EPA MOBILE2 computer program, the initial model year registration distributions are assumed to be based on July 1 data. This July 1 information is then transformed into January 1 model year registration distributions. For vehicle types where model year sales are assumed to begin on October 1 (light duty vehicles and trucks), the original July 1 model year registration distribution accounts for approximately 75 percent of the current model year fleet. Using the assumption of uniform sales throughout the year, approximately 25 percent would have been sold by January 1 (or one-third of the July 1 registration). The older model year registration figures are six months older on July 1 than they are on January 1. However, no direct adjustment are made to these older model year registration figures. Although the difference between January 1 and July 1 for the older model vehicles is primarily scrappage, the older model year registration figures are adjusted later.

Denoting the July 1 registration fractions as R(1), R(2), R(3), . . ., R(20+), we can generalize the January 1 adjustment equations as follows:

FIRST MODEL YEAR INDEX: 1/3*R(1)
SECOND AND LATER MODEL YEAR INDEX: R(i), i=2, 3, . . ., 20+

The second type of adjustment for the January 1 model year registration distributions is to account for the fleet sales fractions: The separation of the model year sales into diesel and gasoline powered vehicle types. The fleet sales fractions are given in each table .4B of Appendix E. As a result, the January 1 model year registration distributions are adjusted according to the following formulation:

FIRST MODEL YEAR INDEX: 1/3*R(1)*F(my)
SECOND AND LATER INDEX: R(i)*F(my-i+1)

F(my) is the fraction of the model year sales which are gasoline powered, if calculating the LDGV or LDGT registration distributions. F(my) is the fraction of the model year sales which are diesel powered, if calculating the LDDV or LDDT registration distributions.

The last adjustment to estimate the January 1 model year registration distributions is to normalize the distribution such that the fractions sum to one. To accomplish this adjustment, the following procedure is used:

DAF = SUMi[P(i)*R(i)*F(my-i+1)]

where P(1) = 1/3
P(i) = 1 i = 2, 3, . . ., 20+
R(i) = July 1 registration figures
i = 1, 2, 3, . . ., 20+

F(my-i+1) = the fleet sales fraction for model year my-i+1

and SUMi = the summation over the 20 model years.

Then each January 1 registration P(i)*R(i)*F(my-i+1) figure is divided by DAF to estimate the January 1 registration mix.

For vehicles whose model year sales begins on January 1 (heavy duty vehicles and motorcycles), there are two changes to the above normalization procedure. P(1) should be set to zero and every F(my-i+1) term should be set to 1.

D.1.2 January 1 Annual Rate of Mileage Accrual for the Fleet

The last aspect of calculating the travel weighting fractions is determination of the January 1 annual rate of mileage accrual. The methodology for calculating the average mileage accumulation rate will be explained by the following example: Calculation of the average annual mileage accumulation rate for the 1985 model year (MY) vehicles on January 1 of 1985, 1986, 1987 and later years.

First the average annual mileage accumulation rate of the 1985 MY light duty vehicles on January 1, 1985, will be calculated (the calendar year when the vehicle model year index is one). It is assumed that mileage

accrual is uniform throughout the year and that 1985 light duty model year sales begin on October 1, 1984.

Using these assumptions, it is obvious that by January 1, 1985, all 1985 MY vehicles are less than one year old and accumulate mileage at the first year rate. The annual rates of mileage accural are presented in table .4 or .4A for each vehicle type. For the light duty gasoline powered vehicles, the annual mileage accrual rate for vehicles during their first year is 14,400 miles.

By January 1, 1986, those vehicles that had been sold by January 1, 1985 have been on the road for an additional year and accumulate mileage at the second year annual rate of 13,900 miles.

In addition to the 1985 model year vehicles sold before January 1, 1985, those 1985 MY vehicles sold after January 1 and before October 1, 1985, must be considered. Again by assuming uniform sales, approximately 75 percent of the 1985 model year vehicles are sold after January 1, 1985. Further, on January 1, 1986 these vehicles are still in their first year of mileage accumulation and are accumulating mileage at a 14,400 mile annual rate.

Since the first group represents three months of sales and the second group represents nine months of sales, the average annual mileage accrual rate of 1985 MY vehicles on January 1, 1986 can be expressed as follows:

(.25)*(13,900) + (.75)*(14,400)

By extension, the formula for the average mileage accumulation rate of the 1985 MY vehicles on January 1, 1987 is as follows:

(.25)*(13,400) + (.75)*(13,900)

Denoting the average annual rate of mileage accrual during the first, second, and third year as M(1), M(2), and M(3); respectively, the generalized average annual mileage accumulation rate equations on January 1 are as follows:

FIRST MODEL YEAR INDEX: M(1)
SECOND MODEL YEAR INDEX: .25*M(2) + .75*M(1)
THIRD MODEL YEAR INDEX: .25*M(3) + .75*M(2)
Ith MODEL YEAR INDEX: .25*M(i) + .75*M(i-1)

For the vehicle types whose model year sales begin on January 1 (heavy duty vehicles and motorcycles) the generalized formulae are as follows:

FIRST MODEL YEAR INDEX: 0
Ith MODEL YEAR INDEX: M(i-1)

D.2 JANUARY 1 FLEET AVERAGE MILEAGE ACCUMULATION

To estimate the emission levels on January 1 for each model year (as in tables .2A through .2C for each vehicle type), the annual mileage accrual rate per vehicle by age distribution is used to derive the fleet average mileage accumulation distribution.

The methodology for calculating the average January 1 fleet cumulative mileages will be explained by example: Calculation of the average cumulative mileage for the 1985 model year (MY) vehicles on January 1 of 1985, 1986, 1987, and later years.

First, we calculate the average fleet cumulative mileage of the 1985 MY LDGVs on January 1, 1985 (the calendar year when the vehicle model year index is defined as one).

We assume vehicle sales are uniform throughout the year, the mileage accrual is uniform throughout the year, and the 1985 model year sales begin on October 1, 1984.

Using these assumptions, it is obvious that by January 1, 1985 (25 percent of the way through the sales year), approximately 25% of the 1985 model year vehicles will be sold. These vehicles range in age from 0 to 3 months. Assuming uniform sales, their average age is 1.5 months.

Therefore, the average mileage accrual for these 1985 MY vehicles which have been sold by January 1, 1985, is 1.5/12, or .125, times the annual rate of mileage accrual for the first year. The annual rates of mileage accrual are presented in table .4 or .4A for each vehicle type. For LDGVs the annual mileage accrual rate for vehicles during their first year is 14,400 miles.

By January 1, 1986, those vehicles sold before January 1, 1985 have been on the road for an additional year. Therefore, those vehicles have accumulated mileage for 1+(1.5/12) years, or 1.125 years. Referring to table .4A or .4 for the annual rates of mileage accrual, we can calculate the average cumulative mileage of these vehicles as the sum of the first year's mileage (14,400 miles) plus .125 times the second year annual rate (13,900 miles).

In addition to the 1985 model year vehicles sold before January 1, 1985, we must consider those 1985 MY vehicles sold between January 1, 1985 and September 30, 1985. If we again assume uniform sales, then by January 1, 1986 these vehicles range in age from 3 months to 12 months, with an average age of 7.5 months. Since these vehicles are still in their first year of use on January 1, 1986, their average mileage accumulation on that date is 7.5/12, or .625, times 14,400 miles.

The average cumulative mileage of all 1985 MY vehicles on January 1, 1986 is the sales weighted average of the cumulative mileages for these two groups of vehicles (those sold before January 1 and those sold after January 1).

Since the first group represents three months of sales and the second group represents nine months of sales, the weighted average cumulative mileage of 1985 MY vehicles on January 1, 1986 can be expressed as follows:

$$.25*[14400 + .125*13900] + .75*[.625*14400]$$

By extension, the formula for the cumulative mileage of 1985 model year vehicles on January 1, 1987 is given by:

$$.25*[14400 + 13900 + .125*13400] + .75*[14400 + .625*13900].$$

Denoting the average rate of mileage accumulation during the first, second, and third years as M(1), M(2), and M(3), we can generalize the equations for cumulative mileage on January 1 as follows:

FIRST YEAR: $.125*M(1)$
SECOND YEAR: $.25*[M(1) + .125*M(2)] + .75*[.625*M(1)]$
THIRD YEAR: $M(1)+.25*[M(2)+.125*M(3)]+.75*[.625*M(2)]$
Ith YEAR: $M(1)+M(2)+...+M(i-2)+.25*[M(i-1)+.125*M(i)]+.75*[.625*M(i-1)]$

For vehicles whose sales year begins on January 1 (heavy duty vehicles and motorcycles) the formulae are modified as follows:

FIRST YEAR: 0
SECOND YEAR: $.5*M(1)$
THIRD YEAR: $M(1) + M(2) + ... + M(i-2) + .5*M(i-1)$

Appendix E

HIGHWAY MOBILE SOURCE EMISSION FACTOR TABLES

All of the emission factor tables for each reion and vehicle type are given within this appendix. Each emission factor table has a three digit identification table number. The table numbers have the following format:

R.VT.#

where

R indicates the region code
- 1 = Low altitude non-California
- 2 = California
- 3 = High altitude non-California

VT indicates the vehicle type
- 1 = LDGV
- 2 = LDGT1
- 3 = LDGT2
- 4 = HDGV
- 5 = LDDV
- 6 = LDDT
- 7 = HDDV
- 8 = MC

\# indicates which of the 16 types of table are referenced.

In addition to this coding scheme for the table numbers, the table titles include the information so that no confusion can arise. Table E-1 gives a summary of every table and table number for each region. There is a total of 100 tables for each region presented in this appendix.

Table E-1
SUMMARY OF THE EMISSION FACTOR TABLE NUMBERS
FOR EACH REGION BY VEHICLE TYPE AND TABLE TYPE

	Vehicle Type Code "VT"							
Table Code "#" Description	.1 LDGV	.2 LDGT1	.3 LDGT2	.4 HDGV	.5 LDDV	.6 LDDT	.7 HDDV	.8 MC
Basic Exhaust Emissions	R.1.1A	R.2.1A	R.3.1A	R.4.1A	R.5.1	R.6.1	R.7.1	R.8.1A
Crankcase & Evap. HC Emissions	R.1.1B	R.2.1B	R.3.1B	R.4.1B	--	--	--	R.8.1B
Basic HC Emission Levels	R.1.2A	R.2.2A	R.3.2A	R.4.2A	R.5.2A	R.6.2A	R.7.2A	R.8.2A
Basic CO Emission Levels	R.1.2B	R.2.2B	R.3.2B	R.4.2B	R.5.2B	R.6.2B	R.7.2B	R.8.2B
Basic NOx Emission Levels	R.1.2C	R.2.2C	R.3.2C	R.4.2C	R.5.2C	R.6.2C	R.7.2C	R.8.2C
Idle Emissions	R.1.3	R.2.3	R.3.3	R.4.3	R.5.3	R.6.3	R.7.3	R.8.3
Registration & Mileage Info.	R.1.4A	R.2.4A	R.3.4A	R.4.4	R.5.4A	R.6.4A	R.7.4	R.8.4
Fleet Sales Fractions	R.1.4B	R.2.4B	R.3.4B	--	R.5.4B	R.6.4B	--	--
Example Travel Fractions	R.1.5	R.2.5	R.3.5	R.4.5	R.5.5	R.6.5	R.7.5	R.8.5
Speed Corrections	R.1.6	R.2.6	R.3.6	R.4.6	R.5.6	R.6.6	R.7.6	R.8.6
Temperature Corrections	R.1.7A	R.2.7A	R.3.7A	R.4.7	R.5.7A	R.6.7A	R.7.7	R.8.7A
Normalized Bag Fractions	R.1.7B	R.2.7B	R.3.7B	--	R.5.7B	R.6.7B	--	R.8.7B
Air Conditioning Corrections	R.1.8A	R.2.8A	R.3.8A	--	--	--	--	--
Air Conditioning Fleet Sizes	R.1.8B	R.2.8B	R.3.8B	--	--	--	--	--
Extra Load Corrections	R.1.9	R.2.9	R.3.9	--	--	--	--	--
Trailer Towing Corrections	R.1.10	R.2.10	R.3.10	--	--	--	--	--

Region Code "R": 1 = Low altitude non-California
2 = California
3 = High altitude non-California

TABLE 1.1.1A

EXHAUST EMISSION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1968	7.25	0.18	8.15
	1968-1969	4.43	0.25	5.68
	1970-1971	3.00	0.37	4.85
	1972-1974	3.36	0.17	4.21
	1975-1979	1.29	0.29	2.74
	1980	0.29	0.29	1.74
	1981	0.39	0.19	1.34
	1982+	0.39	0.19	1.34
CO	Pre-1968	78.27	2.25	89.52
	1968-1969	56.34	2.55	69.09
	1970-1971	42.17	3.13	57.82
	1972-1974	40.78	2.44	52.98
	1975-1979	20.16	2.86	34.46
	1980	6.14	2.86	20.44
	1981	5.60	2.75	19.35
	1982	5.21	2.76	19.01
	1983+	5.00	2.76	18.80
NOx	Pre-1968	3.44	0.0	3.44
	1968-1972	4.35	0.0	4.35
	1973-1974	2.87	0.04	3.07
	1975-1976	2.43	0.04	2.63
	1977-1979	1.69	0.10	2.19
	1980	1.56	0.10	2.06
	1981+	0.75	0.15	1.50

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.1, for the emission standards.

DATE: MARCH 31, 1981

TABLE 1.1.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1963	14.67	3.05	26.08	31.10	4.10	6.38
1963-1967	14.67	3.05	26.08	31.10	0.80	3.08
1968-1970	14.67	3.05	26.08	31.10	0.0	2.28
1971	10.91	3.05	16.28	31.10	0.0	1.59
1972-1977	8.27	3.05	8.98	31.10	0.0	1.10
1978-1980	1.56	3.05	2.65	31.10	0.0	0.24
1981+	0.63	3.05	1.07	31.10	0.0	0.10

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 1.1.2A

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	10.5	1952	10.5	1953	10.5	1954	10.5	1955	10.5	1956	10.5	1957	10.5	1958	10.5	1959	10.5	1960	10.5	1961	10.5	1962	10.5
1952	10.4	1953	10.4	1954	10.4	1955	10.4	1956	10.4	1957	10.4	1958	10.4	1959	10.4	1960	10.4	1961	10.4	1962	10.4	1963	10.4
1953	10.3	1954	10.3	1955	10.3	1956	10.3	1957	10.3	1958	10.3	1959	10.3	1960	10.3	1961	10.3	1962	10.3	1963	10.3	1964	10.3
1954	10.2	1955	10.2	1956	10.2	1957	10.2	1958	10.2	1959	10.2	1960	10.2	1961	10.2	1962	10.2	1963	10.2	1964	10.2	1965	10.2
1955	10.1	1956	10.1	1957	10.1	1958	10.1	1959	10.1	1960	10.1	1961	10.1	1962	10.1	1963	10.1	1964	10.1	1965	10.1	1966	10.1
1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0
1957	9.8	1958	9.8	1959	9.8	1960	9.8	1961	9.8	1962	9.8	1963	9.8	1964	9.8	1965	9.8	1966	9.8	1967	9.8	1968	8.0
1958	9.7	1959	9.7	1960	9.7	1961	9.7	1962	9.7	1963	9.7	1964	9.7	1965	9.7	1966	9.7	1967	9.7	1968	7.8	1969	7.8
1959	9.5	1960	9.5	1961	9.5	1962	9.5	1963	9.5	1964	9.5	1965	9.5	1966	9.5	1967	9.5	1968	7.6	1969	7.6	1970	7.7
1960	9.4	1961	9.4	1962	9.4	1963	9.4	1964	9.4	1965	9.4	1966	9.4	1967	9.4	1968	7.4	1969	7.4	1970	7.4	1971	7.4
1961	9.2	1962	9.2	1963	9.2	1964	9.2	1965	9.2	1966	9.2	1967	9.2	1968	7.1	1969	7.1	1970	7.0	1971	7.0	1972	5.2
1962	9.0	1963	9.0	1964	9.0	1965	9.0	1966	9.0	1967	9.0	1968	6.9	1969	6.9	1970	6.6	1971	6.6	1972	5.0	1973	5.0
1963	8.8	1964	8.8	1965	8.8	1966	8.8	1967	8.8	1968	6.6	1969	6.6	1970	6.2	1971	6.2	1972	4.8	1973	4.8	1974	4.8
1964	8.6	1965	8.6	1966	8.6	1967	8.6	1968	6.3	1969	6.3	1970	5.8	1971	5.8	1972	4.6	1973	4.6	1974	4.6	1975	3.5
1965	8.4	1966	8.4	1967	8.4	1968	6.0	1969	6.0	1970	5.4	1971	5.4	1972	4.4	1973	4.4	1974	4.4	1975	3.1	1976	3.1
1966	8.2	1967	8.2	1968	5.7	1969	5.7	1970	4.9	1971	4.9	1972	4.2	1973	4.2	1974	4.2	1975	2.8	1976	2.8	1977	2.8
1967	7.9	1968	5.4	1969	5.4	1970	4.4	1971	4.4	1972	4.0	1973	4.0	1974	4.0	1975	2.4	1976	2.4	1977	2.4	1978	2.4
1968	5.1	1969	5.1	1970	3.9	1971	3.9	1972	3.8	1973	3.8	1974	3.8	1975	2.0	1976	2.0	1977	2.0	1978	2.0	1979	2.0
1969	4.7	1970	3.4	1971	3.4	1972	3.5	1973	3.5	1974	3.5	1975	1.6	1976	1.6	1977	1.6	1978	1.6	1979	1.6	1980	0.6
1970	3.1	1971	3.1	1972	3.4	1973	3.4	1974	3.4	1975	1.3	1976	1.3	1977	1.3	1978	1.3	1979	1.3	1980	0.3	1981	0.4

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	10.5	1964	10.5	1965	10.5	1966	10.5	1967	10.5	1968	9.0	1969	9.0	1970	9.7	1971	9.7	1972	6.5	1973	6.5	1974	6.5
1964	10.4	1965	10.4	1966	10.4	1967	10.4	1968	8.9	1969	8.9	1970	9.5	1971	9.5	1972	6.4	1973	6.4	1974	6.4	1975	6.4
1965	10.3	1966	10.3	1967	10.3	1968	8.7	1969	8.7	1970	9.3	1971	9.3	1972	6.3	1973	6.3	1974	6.3	1975	6.3	1976	6.3
1966	10.2	1967	10.2	1968	8.6	1969	8.6	1970	9.1	1971	9.1	1972	6.2	1973	6.2	1974	6.2	1975	6.1	1976	6.1	1977	6.1
1967	10.1	1968	8.4	1969	8.4	1970	8.9	1971	8.9	1972	6.1	1973	6.1	1974	6.1	1975	5.9	1976	5.9	1977	5.9	1978	5.9
1968	8.2	1969	8.2	1970	8.6	1971	8.6	1972	5.9	1973	5.9	1974	5.9	1975	5.7	1976	5.7	1977	5.7	1978	5.7	1979	5.7
1969	8.0	1970	8.3	1971	8.3	1972	5.8	1973	5.8	1974	5.8	1975	5.5	1976	5.5	1977	5.5	1978	5.5	1979	5.5	1980	4.5
1970	8.0	1971	8.0	1972	5.7	1973	5.7	1974	5.7	1975	5.2	1976	5.2	1977	5.2	1978	5.2	1979	5.2	1980	4.2	1981	3.0
1971	7.7	1972	5.5	1973	5.5	1974	5.5	1975	5.0	1976	5.0	1977	5.0	1978	5.0	1979	5.0	1980	4.0	1981	2.8	1982	2.8
1972	5.4	1973	5.4	1974	5.4	1975	4.7	1976	4.7	1977	4.7	1978	4.7	1979	4.7	1980	3.7	1981	2.6	1982	2.6	1983	2.6
1973	5.2	1974	5.2	1975	4.4	1976	4.4	1977	4.4	1978	4.4	1979	4.4	1980	3.4	1981	2.4	1982	2.4	1983	2.4	1984	2.4
1974	5.0	1975	4.1	1976	4.1	1977	4.1	1978	4.1	1979	4.1	1980	3.1	1981	2.2	1982	2.2	1983	2.2	1984	2.2	1985	2.2
1975	3.8	1976	3.8	1977	3.8	1978	3.8	1979	3.8	1980	2.8	1981	2.0	1982	2.0	1983	2.0	1984	2.0	1985	2.0	1986	2.0
1976	3.5	1977	3.5	1978	3.5	1979	3.5	1980	2.5	1981	1.8	1982	1.8	1983	1.8	1984	1.8	1985	1.8	1986	1.8	1987	1.8
1977	3.1	1978	3.1	1979	3.1	1980	2.1	1981	1.6	1982	1.6	1983	1.6	1984	1.6	1985	1.6	1986	1.6	1987	1.6	1988	1.6
1978	2.8	1979	2.8	1980	1.8	1981	1.4	1982	1.4	1983	1.4	1984	1.4	1985	1.4	1986	1.4	1987	1.4	1988	1.4	1989	1.4
1979	2.4	1980	1.4	1981	1.1	1982	1.1	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1	1988	1.1	1989	1.1	1990	1.1
1980	1.0	1981	0.9	1982	0.9	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9	1991	0.9
1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6
1982	0.4	1983	0.4	1984	0.4	1985	0.4	1986	0.4	1987	0.4	1988	0.4	1989	0.4	1990	0.4	1991	0.4	1992	0.4	1993	0.4

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.1.4A.

DATE: MARCH 31, 1981

TABLE 1.1.2B

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	119.2	1952	119.2	1953	119.2	1954	119.2	1955	119.2	1956	119.2	1957	119.2	1958	119.2	1959	119.2	1960	119.2	1961	119.2	1962	119.2
1952	118.1	1953	118.1	1954	118.1	1955	118.1	1956	118.1	1957	118.1	1958	118.1	1959	118.1	1960	118.1	1961	118.1	1962	118.1	1963	118.1
1953	116.8	1954	116.8	1955	116.8	1956	116.8	1957	116.8	1958	116.8	1959	116.8	1960	116.8	1961	116.8	1962	116.8	1963	116.8	1964	116.8
1954	115.5	1955	115.5	1956	115.5	1957	115.5	1958	115.5	1959	115.5	1960	115.5	1961	115.5	1962	115.5	1963	115.5	1964	115.5	1965	115.5
1955	114.0	1956	114.0	1957	114.0	1958	114.0	1959	114.0	1960	114.0	1961	114.0	1962	114.0	1963	114.0	1964	114.0	1965	114.0	1966	114.0
1956	112.4	1957	112.4	1958	112.4	1959	112.4	1960	112.4	1961	112.4	1962	112.4	1963	112.4	1964	112.4	1965	112.4	1966	112.4	1967	112.4
1957	110.7	1958	110.7	1959	110.7	1960	110.7	1961	110.7	1962	110.7	1963	110.7	1964	110.7	1965	110.7	1966	110.7	1967	110.7	1968	93.1
1958	108.8	1959	108.8	1960	108.8	1961	108.8	1962	108.8	1963	108.8	1964	108.8	1965	108.8	1966	108.8	1967	108.8	1968	91.0	1969	91.0
1959	106.9	1960	106.9	1961	106.9	1962	106.9	1963	106.9	1964	106.9	1965	106.9	1966	106.9	1967	106.9	1968	88.8	1969	88.8	1970	82.0
1960	104.8	1961	104.8	1962	104.8	1963	104.8	1964	104.8	1965	104.8	1966	104.8	1967	104.8	1968	86.4	1969	86.4	1970	79.1	1971	79.1
1961	102.6	1962	102.6	1963	102.6	1964	102.6	1965	102.6	1966	102.6	1967	102.6	1968	83.9	1969	83.9	1970	76.0	1971	76.0	1972	67.2
1962	100.3	1963	100.3	1964	100.3	1965	100.3	1966	100.3	1967	100.3	1968	81.3	1969	81.3	1970	72.8	1971	72.8	1972	64.6	1973	64.6
1963	97.8	1964	97.8	1965	97.8	1966	97.8	1967	97.8	1968	78.5	1969	78.5	1970	69.4	1971	69.4	1972	62.0	1973	62.0	1974	62.0
1964	95.3	1965	95.3	1966	95.3	1967	95.3	1968	75.6	1969	75.6	1970	65.8	1971	65.8	1972	59.2	1973	59.2	1974	59.2	1975	41.8
1965	92.6	1966	92.6	1967	92.6	1968	72.6	1969	72.6	1970	62.1	1971	62.1	1972	56.3	1973	56.3	1974	56.3	1975	38.4	1976	38.4
1966	89.8	1967	89.8	1968	69.4	1969	69.4	1970	58.2	1971	58.2	1972	53.3	1973	53.3	1974	53.3	1975	34.8	1976	34.8	1977	34.8
1967	86.9	1968	66.1	1969	66.1	1970	54.2	1971	54.2	1972	50.1	1973	50.1	1974	50.1	1975	31.1	1976	31.1	1977	31.1	1978	31.1
1968	62.7	1969	62.7	1970	49.9	1971	49.9	1972	46.8	1973	46.8	1974	46.8	1975	27.3	1976	27.3	1977	27.3	1978	27.3	1979	27.3
1969	59.1	1970	45.5	1971	45.5	1972	43.4	1973	43.4	1974	43.4	1975	23.2	1976	23.2	1977	23.2	1978	23.2	1979	23.2	1980	9.2
1970	42.7	1971	42.7	1972	41.2	1973	41.2	1974	41.2	1975	20.7	1976	20.7	1977	20.7	1978	20.7	1979	20.7	1980	6.7	1981	6.1

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	119.2	1964	119.2	1965	119.2	1966	119.2	1967	119.2	1968	102.7	1969	102.7	1970	99.1	1971	99.1	1972	85.2	1973	85.2	1974	85.2
1964	118.1	1965	118.1	1966	118.1	1967	118.1	1968	101.4	1969	101.4	1970	97.5	1971	97.5	1972	83.9	1973	83.9	1974	83.9	1975	70.7
1965	116.8	1966	116.8	1967	116.8	1968	100.0	1969	100.0	1970	95.8	1971	95.8	1972	82.6	1973	82.6	1974	82.6	1975	69.2	1976	69.2
1966	115.5	1967	115.5	1968	98.5	1969	98.5	1970	93.9	1971	93.9	1972	81.1	1973	81.1	1974	81.1	1975	67.4	1976	67.4	1977	67.4
1967	114.0	1968	96.8	1969	96.8	1970	91.9	1971	91.9	1972	79.5	1973	79.5	1974	79.5	1975	65.6	1976	65.6	1977	65.6	1978	65.6
1968	95.0	1969	95.0	1970	89.6	1971	89.6	1972	77.8	1973	77.8	1974	77.8	1975	63.5	1976	63.5	1977	63.5	1978	63.5	1979	63.5
1969	93.1	1970	87.2	1971	87.2	1972	75.9	1973	75.9	1974	75.9	1975	61.3	1976	61.3	1977	61.3	1978	61.3	1979	61.3	1980	47.3
1970	84.7	1971	84.7	1972	73.9	1973	73.9	1974	73.9	1975	59.0	1976	59.0	1977	59.0	1978	59.0	1979	59.0	1980	45.0	1981	43.0
1971	82.0	1972	71.8	1973	71.8	1974	71.8	1975	56.5	1976	56.5	1977	56.5	1978	56.5	1979	56.5	1980	42.5	1981	40.6	1982	40.3
1972	69.5	1973	69.5	1974	69.5	1975	53.9	1976	53.9	1977	53.9	1978	53.9	1979	53.9	1980	39.9	1981	38.0	1982	37.7	1983	37.5
1973	67.2	1974	67.2	1975	51.1	1976	51.1	1977	51.1	1978	51.1	1979	51.1	1980	37.1	1981	35.3	1982	35.1	1983	34.8	1984	34.8
1974	64.6	1975	48.1	1976	48.1	1977	48.1	1978	48.1	1979	48.1	1980	34.1	1981	32.5	1982	32.2	1983	32.0	1984	32.0	1985	32.0
1975	45.0	1976	45.0	1977	45.0	1978	45.0	1979	45.0	1980	31.0	1981	29.5	1982	29.2	1983	29.0	1984	29.0	1985	29.0	1986	29.0
1976	41.8	1977	41.8	1978	41.8	1979	41.8	1980	27.8	1981	26.4	1982	26.1	1983	25.9	1984	25.9	1985	25.9	1986	25.9	1987	25.9
1977	38.4	1978	38.4	1979	38.4	1980	24.4	1981	23.1	1982	22.8	1983	22.6	1984	22.6	1985	22.6	1986	22.6	1987	22.6	1988	22.6
1978	34.8	1979	34.8	1980	20.8	1981	19.7	1982	19.4	1983	19.2	1984	19.2	1985	19.2	1986	19.2	1987	19.2	1988	19.2	1989	19.2
1979	31.1	1980	17.1	1981	16.1	1982	15.8	1983	15.6	1984	15.6	1985	15.6	1986	15.6	1987	15.6	1988	15.6	1989	15.6	1990	15.6
1980	13.2	1981	12.4	1982	12.1	1983	11.8	1984	11.8	1985	11.8	1986	11.8	1987	11.8	1988	11.8	1989	11.8	1990	11.8	1991	11.8
1981	8.6	1982	8.2	1983	8.0	1984	8.0	1985	8.0	1986	8.0	1987	8.0	1988	8.0	1989	8.0	1990	8.0	1991	8.0	1992	8.0
1982	5.7	1983	5.5	1984	5.5	1985	5.5	1986	5.5	1987	5.5	1988	5.5	1989	5.5	1990	5.5	1991	5.5	1992	5.5	1993	5.5

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.1.4A.

DATE: MARCH 31, 1981

TABLE 1.1.2C

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	3.4	1952	3.4	1953	3.4	1954	3.4	1955	3.4	1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4
1952	3.4	1953	3.4	1954	3.4	1955	3.4	1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4
1953	3.4	1954	3.4	1955	3.4	1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4
1954	3.4	1955	3.4	1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4
1955	3.4	1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4
1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4
1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3
1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3
1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3
1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3
1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3
1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.3
1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.2	1974	3.2
1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.2	1974	3.2	1975	2.7
1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.1	1974	3.1	1975	2.7	1976	2.7
1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.1	1974	3.1	1975	2.6	1976	2.6	1977	2.2
1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.0	1974	3.0	1975	2.6	1976	2.6	1977	2.1	1978	2.1
1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.0	1974	3.0	1975	2.5	1976	2.5	1977	1.9	1978	1.9	1979	1.9
1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	2.9	1974	2.9	1975	2.5	1976	2.5	1977	1.8	1978	1.8	1979	1.8	1980	1.7
1970	4.3	1971	4.3	1972	4.3	1973	2.9	1974	2.9	1975	2.4	1976	2.4	1977	1.7	1978	1.7	1979	1.7	1980	1.6	1981	0.8

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.6	1974	3.6
1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.6	1974	3.6	1975	3.1
1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.5	1974	3.5	1975	3.1	1976	3.1
1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.5	1974	3.5	1975	3.1	1976	3.1	1977	3.3
1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.5	1974	3.5	1975	3.0	1976	3.0	1977	3.2	1978	3.3
1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.5	1974	3.5	1975	3.0	1976	3.0	1977	3.1	1978	3.1	1979	3.2
1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.4	1974	3.4	1975	3.0	1976	3.0	1977	3.0	1978	3.0	1979	3.0	1980	3.0
1970	4.3	1971	4.3	1972	4.3	1973	3.4	1974	3.4	1975	3.0	1976	3.0	1977	3.0	1978	3.0	1979	3.0	1980	2.9	1981	2.8
1971	4.3	1972	4.3	1973	3.4	1974	3.4	1975	2.9	1976	2.9	1977	3.0	1978	3.0	1979	3.0	1980	2.8	1981	2.7	1982	2.7
1972	4.3	1973	3.3	1974	3.3	1975	2.9	1976	2.9	1977	2.9	1978	2.9	1979	2.9	1980	2.7	1981	2.5	1982	2.5	1983	2.5
1973	3.3	1974	3.3	1975	2.9	1976	2.9	1977	2.8	1978	2.8	1979	2.8	1980	2.6	1981	2.4	1982	2.4	1983	2.4	1984	2.4
1974	3.3	1975	2.8	1976	2.8	1977	2.7	1978	2.7	1979	2.7	1980	2.5	1981	2.2	1982	2.2	1983	2.2	1984	2.2	1985	2.2
1975	2.8	1976	2.8	1977	2.6	1978	2.6	1979	2.6	1980	2.4	1981	2.1	1982	2.1	1983	2.1	1984	2.1	1985	2.1	1986	2.1
1976	2.7	1977	2.4	1978	2.4	1979	2.4	1980	2.3	1981	1.9	1982	1.9	1983	1.9	1984	1.9	1985	1.9	1986	1.9	1987	1.9
1977	2.3	1978	2.3	1979	2.3	1980	2.2	1981	1.7	1982	1.7	1983	1.7	1984	1.7	1985	1.7	1986	1.7	1987	1.7	1988	1.7
1978	2.2	1979	2.2	1980	2.1	1981	1.5	1982	1.5	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5
1979	2.1	1980	1.9	1981	1.3	1982	1.3	1983	1.3	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3
1980	1.8	1981	1.1	1982	1.1	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1	1988	1.1	1989	1.1	1990	1.1	1991	1.1
1981	0.9	1982	0.9	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9	1991	0.9	1992	0.9
1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8	1993	0.8

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F,
20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based
on the January 1 mileage accumulation figures given in Table 1.1.4A.

DATE: MARCH 31, 1981

TABLE 1.1.3

IDLE EMISSION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1968	1.32	0.03
	1968-1969	1.07	0.06
	1970-1971	0.54	0.07
	1972-1974	0.72	0.04
	1975-1979	0.30	0.07
	1980	0.07	0.07
	1981	0.09	0.04
	1982+	0.09	0.04
CO	Pre-1968	13.76	0.40
	1968-1969	13.99	0.63
	1970-1971	11.84	0.88
	1972-1974	12.66	0.76
	1975-1979	6.00	0.85
	1980	1.83	0.85
	1981	1.63	0.82
	1982	1.55	0.81
	1983+	1.48	0.82
NOx	Pre-1968	0.09	0.0
	1968-1972	0.17	0.0
	1973-1974	0.14	0.0
	1975-1976	0.26	0.0
	1977-1979	0.18	0.01
	1980	0.17	0.01
	1981+	0.08	0.01

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.1.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.072	14400.	0.024	14400.	1800.
2	0.101	13900.	0.101	14275.	10784.
3	0.092	13400.	0.092	13775.	24809.
4	0.071	12800.	0.071	13250.	38331.
5	0.092	12300.	0.092	12675.	51284.
6	0.103	11800.	0.103	12175.	63709.
7	0.089	11200.	0.089	11650.	75631.
8	0.071	10700.	0.071	11075.	86984.
9	0.066	10200.	0.066	10575.	97809.
10	0.059	9600.	0.059	10050.	108131.
11	0.048	9100.	0.048	9475.	117884.
12	0.035	8600.	0.035	8975.	127109.
13	0.030	8000.	0.030	8450.	135831.
14	0.023	7500.	0.023	7875.	143984.
15	0.015	7000.	0.015	7375.	151609.
16	0.010	6400.	0.010	6850.	158731.
17	0.005	5900.	0.005	6275.	165284.
18	0.003	5400.	0.003	5775.	171309.
19	0.002	4900.	0.002	5275.	176833.
20+	0.015	4300.	0.015	4750.	181855.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 1.1.4B

FLEET SALES FRACTION* FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	Sales Fraction
Pre-1975	1.000
1975	0.998
1976	0.997
1977	0.995
1978	0.991
1979	0.972
1980	0.966
1981	0.953
1982	0.925
1983	0.911
1984	0.905
1985	0.886
1986	0.862
1987	0.835
1988	0.824
1989	0.813
1990	0.803
1991+	0.800

* The estimated fraction of the light duty vehicle model year fleet which is gasoline powered.

DATE: MARCH 31, 1981

TABLE 1.1.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) LDV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDGV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.024	0.886	0.021	0.023	14400.	335.3	0.029
1984	0.101	0.905	0.091	0.100	14275.	1425.3	0.124
1983	0.092	0.911	0.084	0.092	13775.	1263.7	0.110
1982	0.071	0.925	0.065	0.072	13250.	948.8	0.082
1981	0.092	0.953	0.087	0.095	12675.	1209.8	0.105
1980	0.103	0.966	0.099	0.108	12175.	1319.4	0.115
1979	0.089	0.972	0.086	0.094	11650.	1099.5	0.096
1978	0.071	0.991	0.071	0.077	11075.	854.4	0.074
1977	0.066	0.995	0.066	0.072	10575.	758.2	0.066
1976	0.059	0.997	0.059	0.064	10050.	647.5	0.056
1975	0.048	0.998	0.048	0.052	9475.	494.2	0.043
1974	0.035	1.000	0.035	0.038	8975.	342.5	0.030
1973	0.030	1.000	0.030	0.033	8450.	277.2	0.024
1972	0.023	1.000	0.023	0.025	7875.	198.0	0.017
1971	0.015	1.000	0.015	0.016	7375.	121.0	0.011
1970	0.010	1.000	0.010	0.011	6850.	74.1	0.006
1969	0.005	1.000	0.005	0.006	6275.	37.7	0.003
1968	0.003	1.000	0.003	0.003	5775.	15.8	0.001
1967	0.002	1.000	0.002	0.002	5275.	9.8	0.001
1966-	0.015	1.000	0.015	0.016	4750.	75.8	0.007
		DAF:	0.915		TFNORM:	11507.9	

WHERE:

A = January 1 registration mix from Table 1.1.4A.
B = Fleet sales fractions from Table 1.1.4B.
D = Sales weighted fleet mileage accumulation rate from Table 1.1.4A, adjusted to January 1.
D(1) = Annual Miles(1)
D(MYI)= .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 1.1.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5, \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1968	0.231026E+01	-0.289572E+00	0.152990E-01	-0.446689E-03	0.648183E-05	-0.363456E-07
1968	0.239726E+01	-0.299985E+00	0.161351E-01	-0.487491E-03	0.729093E-05	-0.419769E-07
1969	0.240873E+01	-0.308187E+00	0.168168E-01	-0.506843E-03	0.753855E-05	-0.431596E-07
1970	0.223217E+01	-0.284985E+00	0.153833E-01	-0.456738E-03	0.673486E-05	-0.383798E-07
1971	0.225223E+01	-0.287778E+00	0.156820E-01	-0.473179E-03	0.707954E-05	-0.408456E-07
1972	0.234948E+01	-0.304959E+00	0.168416E-01	-0.509623E-03	0.759516E-05	-0.434963E-07
1973-1974	0.268382E+01	-0.344633E+00	0.195417E-01	-0.625720E-03	0.978442E-05	-0.583369E-07
1975+	0.239540E+01	-0.335781E+00	0.211609E-01	-0.731550E-03	0.120715E-04	-0.748566E-07
CO :						
PRE-1968	0.233989E+01	-0.296978E+00	0.160071E-01	-0.477396E-03	0.706752E-05	-0.403978E-07
1968	0.246551E+01	-0.305023E+00	0.160497E-01	-0.473969E-03	0.699075E-05	-0.399758E-07
1969	0.277804E+01	-0.319130E+00	0.153183E-01	-0.422327E-03	0.584948E-05	-0.314969E-07
1970	0.278899E+01	-0.327107E+00	0.162943E-01	-0.467573E-03	0.671906E-05	-0.374401E-07
1971	0.270743E+01	-0.331038E+00	0.176179E-01	-0.538583E-03	0.817402E-05	-0.477803E-07
1972	0.268454E+01	-0.3328 7E+00	0.176277E-01	-0.524123E-03	0.772221E-05	-0.437025E-07
1973-1974	0.283929E+01	-0.368756E+00	0.210782E-01	-0.676438E-03	0.106267E-04	-0.636405E-07
1975+	0.248747E+01	-0.391562E+00	0.270721E-01	-0.976178E-03	0.165270E-04	-0.104317E-06
NOx:						
PRE-1968	0.168635E+01	-0.118303E+00	0.654975E-02	-0.137139E-03	0.100849E-05	0.0
1968	0.122677E+01	-0.444978E-01	0.262476E-02	-0.567150E-04	0.434293E-06	0.0
1969	0.101743E+01	-0.118958E-01	0.914365E-03	-0.215740E-04	0.182300E-06	0.0
1970	0.987600E+00	-0.195674E-01	0.169645E-02	-0.404000E-04	0.328001E-06	0.0
1971	0.115917E+01	-0.444536E-01	0.296425E-02	-0.668990E-04	0.522365E-06	0.0
1972	0.128169E+01	-0.804874E-01	0.535735E-02	-0.118891E-03	0.901060E-06	0.0
1973-1974	0.783838E+00	0.328549E-03	0.106029E-02	-0.319350E-04	0.290389E-06	0.0
1975+	0.942131E+00	-0.423240E-01	0.386253E-02	-0.939853E-04	0.753883E-06	0.0

Where:
- s = average speed (mph)
- sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w. [1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 1.1.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1968	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1968-1969	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1970-1971	-0.21255E-01	-0.10888E-01	-0.52755E-03	-0.47925E-03	0.93659E-03	0.76666E-02
	1972-1974	-0.21427E-01	-0.66107E-02	-0.39442E-03	0.26288E-02	0.49731E-02	0.12320E-01
	1975-1979	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1980	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1981	-0.25217E-01	0.11959E-01	-0.56153E-02	-0.12627E-04	-0.36228E-02	0.78765E-02
	1982+	-0.25217E-01	0.11959E-01	-0.56153E-02	-0.12627E-04	-0.36228E-02	0.78765E-02
CO	Pre-1968	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1968-1969	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1970-1971	-0.20843E-01	-0.21165E-01	-0.59951E-02	0.23603E-01	0.18253E-02	0.28483E-01
	1972-1974	-0.19091E-01	-0.13146E-01	-0.42373E-03	0.24717E-01	0.57982E-02	0.25848E-01
	1975-1979	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1980	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1981	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
	1982	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
	1983+	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
NOx	Pre-1968	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1968-1972	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01
	1973-1974	0.38855E-02	-0.18301E-01	-0.24156E-02	-0.10925E-01	-0.21188E-02	-0.18042E-01
	1975-1976	-0.45504E-04	-0.71420E-02	-0.12575E-02	-0.87910E-02	-0.53153E-03	-0.75470E-02
	1977-1979	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1980	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1981+	0.15668E-02	-0.34416E-01	0.59496E-03	-0.35871E-01	-0.24888E-02	-0.28830E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 1.1.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

DATE: MARCH 31, 1981

TABLE 1.1.7B

NORMALIZED BAG FRACTIONS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1968	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1968-1969	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1970-1971	1.345	0.178	0.919	0.118	0.894	0.093	1.000	0.124
	1972-1974	1.398	0.060	0.885	0.055	0.919	0.036	1.000	0.051
	1975-1979	2.092	0.248	0.649	0.254	0.846	0.152	1.000	0.225
	1980	2.092	1.339	0.649	1.014	0.846	0.717	1.000	1.000
	1981	2.961	0.154	0.407	0.585	0.652	0.552	1.000	0.487
	1982+	2.961	0.164	0.407	0.598	0.652	0.566	1.000	0.500
CO	Pre-1968	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1968-1969	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1970-1971	1.553	0.109	0.933	0.079	0.711	0.038	1.000	0.074
	1972-1974	1.573	0.054	0.902	0.079	0.755	0.029	1.000	0.060
	1975-1979	2.413	0.143	0.608	0.180	0.681	0.068	1.000	0.142
	1980	2.413	0.657	0.608	0.503	0.681	0.251	1.000	0.466
	1981	3.184	0.485	0.345	0.542	0.601	0.438	1.000	0.502
	1982	3.184	0.516	0.345	0.564	0.601	0.457	1.000	0.525
	1983+	3.184	0.551	0.345	0.589	0.601	0.479	1.000	0.551
NOx	Pre-1968	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1968-1972	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0
	1973-1974	1.262	0.022	0.770	0.004	1.242	0.027	1.000	0.014
	1975-1976	1.311	0.021	0.774	0.010	1.198	0.026	1.000	0.017
	1977-1979	1.393	0.050	0.754	0.052	1.172	0.079	1.000	0.059
	1980	1.393	0.056	0.754	0.056	1.172	0.085	1.000	0.064
	1981+	1.801	0.169	0.653	0.141	1.059	0.296	1.000	0.189

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.1.8A

AIR CONDITIONING CORRECTION FACTORS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* ACCF= U*V*(A + B*(T-75) -1) + 1

Model Years	HC		CO		NOx	
	A	B	A	B	A	B
Pre-1975	0.1023E+01	0.3344E-02	0.1202E+01	0.1808E-02	0.1299E+01	0.5643E-04
1975+	0.1000E+01	0.3512E-02	0.1130E+01	0.1528E-02	0.1221E+01	0.4262E-03

*WHERE:
- ACCF = Air Conditioning Correction Factor
- V = Fraction of vehicles which are equipped with AC given in Table 1.1.8B
- U = Fraction of vehicles with AC that are using it = (DI-DILO)/(DIHI-DI), 0<=U<=1
- DI = Discomfort index = (DB+WB)*.4+15
- DILO = The highest discomfort index where no AC is used
- DIHI = The lowest discomfort index where all vehicles with AC use it
- DB = Dry bulb temperature (Fahrenheit)
- WB = Wet bulb temperature (Fahrenheit)
- T = Ambient temperature (Fahrenheit)

TABLE 1.1.8B

ESTIMATED FRACTION OF
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES
EQUIPPED WITH AIR CONDITIONING

Model Years	Fraction Equipped With Air Conditioning
Pre-1962	0.07
1962-1964	0.14
1965-1966	0.24
1967-1968	0.37
1969-1971	0.51
1972-1976	0.61
1977+	0.72

DATE: MARCH 31, 1981

TABLE 1.1.9

EXTRA LOAD CORRECTION FACTORS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* XLCF = (XLC-1)*U + 1

Model Years	Coefficients (XLC) HC	CO	NOx
Pre-1968	1.0786	1.2765	0.9535
1968-1969	1.0495	1.1384	1.0313
1970-1971	1.0852	1.2478	1.0313
1972	1.0556	1.1347	1.0313
1973-1974	1.0556	1.1347	1.0753
1975+	1.0455	1.3058	1.0719

* WHERE:
XLCF = Extra load correction factor
U = Fraction of VMT with an extra load
XLC = Correction factor coefficient

TABLE 1.1.10

TRAILER TOWING CORRECTION FACTORS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* TTCF = (TTC-1)*U + 1

Model Years	Coefficients (TTC) HC	CO	NOx
Pre-1968	1.2614	1.9327	1.1184
1968-1969	1.2762	1.8940	1.1384
1970-1971	1.4598	2.4753	1.1384
1972	1.7288	2.1414	1.1384
1973-1974	1.7288	2.1414	1.2170
1975+	1.5909	3.9722	1.3875

* WHERE:
TTCF = Trailer towing correction factor
U = Fraction of VMT towing a trailer
TTC = Correction factor coefficient

DATE: MARCH 31, 1981

TABLE 1.2.1A

EXHAUST EMISSION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS 1

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1968	7.25	0.18	8.15
	1968-1969	4.43	0.25	5.68
	1970-1971	3.00	0.37	4.85
	1972-1974	3.36	0.17	4.21
	1975-1978	1.84	0.29	3.29
	1979-1980	0.99	0.29	2.44
	1981	0.89	0.26	2.19
	1982-1983	0.88	0.26	2.18
	1984	0.58	0.14	1.28
	1985+	0.41	0.11	0.96
CO	Pre-1968	78.27	2.25	89.52
	1968-1969	56.34	2.55	69.09
	1970-1971	42.17	3.13	57.82
	1972-1974	40.78	2.44	52.98
	1975-1978	24.91	2.86	39.21
	1979-1980	13.92	2.86	28.22
	1981	11.85	2.43	24.00
	1982-1983	11.44	2.35	23.19
	1984	6.14	1.35	12.89
	1985+	3.01	1.59	10.96
NOx	Pre-1968	3.44	0.0	3.44
	1968-1972	4.35	0.0	4.35
	1973-1974	2.87	0.04	3.07
	1975-1978	2.95	0.04	3.15
	1979-1981	1.85	0.10	2.35
	1982-1983	1.90	0.10	2.40
	1984	1.42	0.08	1.82
	1985+	0.59	0.09	1.04

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.2, for the emission standards.

DATE: MARCH 31, 1981

TABLE 1.2.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1963	14.67	3.05	26.08	26.30	4.10	6.79
1963-1967	14.67	3.05	26.08	26.30	0.80	3.49
1968-1970	14.67	3.05	26.08	26.30	0.0	2.69
1971	10.91	3.05	16.28	26.30	0.0	1.88
1972-1977	8.27	3.05	8.98	26.30	0.0	1.30
1978-1980	1.56	3.05	2.65	26.30	0.0	0.28
1981+	0.63	3.05	1.07	26.30	0.0	0.11

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 1.2.2A

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	10.0	1952	10.0	1953	10.0	1954	10.0	1955	10.0	1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0
1952	9.9	1953	9.9	1954	9.9	1955	9.9	1956	9.9	1957	9.9	1958	9.9	1959	9.9	1960	9.9	1961	9.9	1962	9.9	1963	9.9
1953	9.8	1954	9.8	1955	9.8	1956	9.8	1957	9.8	1958	9.8	1959	9.8	1960	9.8	1961	9.8	1962	9.8	1963	9.8	1964	9.8
1954	9.7	1955	9.7	1956	9.7	1957	9.7	1958	9.7	1959	9.7	1960	9.7	1961	9.7	1962	9.7	1963	9.7	1964	9.7	1965	9.7
1955	9.6	1956	9.6	1957	9.6	1958	9.6	1959	9.6	1960	9.6	1961	9.6	1962	9.6	1963	9.6	1964	9.6	1965	9.6	1966	9.6
1956	9.5	1957	9.5	1958	9.5	1959	9.5	1960	9.5	1961	9.5	1962	9.5	1963	9.5	1964	9.5	1965	9.5	1966	9.5	1967	9.5
1957	9.4	1958	9.4	1959	9.4	1960	9.4	1961	9.4	1962	9.4	1963	9.4	1964	9.4	1965	9.4	1966	9.4	1967	9.4	1968	7.5
1958	9.3	1959	9.3	1960	9.3	1961	9.3	1962	9.3	1963	9.3	1964	9.3	1965	9.3	1966	9.3	1967	9.3	1968	7.3	1969	7.3
1959	9.2	1960	9.2	1961	9.2	1962	9.2	1963	9.2	1964	9.2	1965	9.2	1966	9.2	1967	9.2	1968	7.2	1969	7.2	1970	7.0
1960	9.1	1961	9.1	1962	9.1	1963	9.1	1964	9.1	1965	9.1	1966	9.1	1967	9.1	1968	7.0	1969	7.0	1970	6.8	1971	6.8
1961	9.0	1962	9.0	1963	9.0	1964	9.0	1965	9.0	1966	9.0	1967	9.0	1968	6.8	1969	6.8	1970	6.5	1971	6.5	1972	5.0
1962	8.8	1963	8.8	1964	8.8	1965	8.8	1966	8.8	1967	8.8	1968	6.6	1969	6.6	1970	6.2	1971	6.2	1972	4.8	1973	4.8
1963	8.7	1964	8.7	1965	8.7	1966	8.7	1967	8.7	1968	6.4	1969	6.4	1970	5.9	1971	5.9	1972	4.7	1973	4.7	1974	4.7
1964	8.5	1965	8.5	1966	8.5	1967	8.5	1968	6.2	1969	6.2	1970	5.6	1971	5.6	1972	4.6	1973	4.6	1974	4.6	1975	3.9
1965	8.3	1966	8.3	1967	8.3	1968	6.0	1969	6.0	1970	5.3	1971	5.3	1972	4.4	1973	4.4	1974	4.4	1975	3.6	1976	3.6
1966	8.2	1967	8.2	1968	5.7	1969	5.7	1970	4.9	1971	4.9	1972	4.2	1973	4.2	1974	4.2	1975	3.3	1976	3.3	1977	3.3
1967	8.0	1968	5.4	1969	5.4	1970	4.4	1971	4.4	1972	4.0	1973	4.0	1974	4.0	1975	3.0	1976	3.0	1977	3.0	1978	3.0
1968	5.1	1969	5.1	1970	4.0	1971	4.0	1972	3.8	1973	3.8	1974	3.8	1975	2.6	1976	2.6	1977	2.6	1978	2.6	1979	1.7
1969	4.7	1970	3.4	1971	3.4	1972	3.6	1973	3.6	1974	3.6	1975	2.2	1976	2.2	1977	2.2	1978	2.2	1979	1.3	1980	1.3
1970	3.1	1971	3.1	1972	3.4	1973	3.4	1974	3.4	1975	1.9	1976	1.9	1977	1.9	1978	1.9	1979	1.0	1980	1.0	1981	0.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	8.2	1969	8.2	1970	8.6	1971	8.6	1972	5.9	1973	5.9	1974	5.9
1964	9.9	1965	9.9	1966	9.9	1967	9.9	1968	8.1	1969	8.1	1970	8.4	1971	8.4	1972	5.8	1973	5.8	1974	5.8	1975	6.1
1965	9.8	1966	9.8	1967	9.8	1968	8.0	1969	8.0	1970	8.2	1971	8.2	1972	5.8	1973	5.8	1974	5.8	1975	6.0	1976	6.0
1966	9.7	1967	9.7	1968	7.9	1969	7.9	1970	8.1	1971	8.1	1972	5.7	1973	5.7	1974	5.7	1975	5.8	1976	5.8	1977	5.8
1967	9.6	1968	7.7	1969	7.7	1970	7.9	1971	7.9	1972	5.6	1973	5.6	1974	5.6	1975	5.7	1976	5.7	1977	5.7	1978	5.7
1968	7.6	1969	7.6	1970	7.7	1971	7.7	1972	5.5	1973	5.5	1974	5.5	1975	5.5	1976	5.5	1977	5.5	1978	5.5	1979	4.7
1969	7.5	1970	7.5	1971	7.5	1972	5.4	1973	5.4	1974	5.4	1975	5.4	1976	5.4	1977	5.4	1978	5.4	1979	4.5	1980	4.5
1970	7.3	1971	7.3	1972	5.3	1973	5.3	1974	5.3	1975	5.2	1976	5.2	1977	5.2	1978	5.2	1979	4.3	1980	4.3	1981	3.9
1971	7.0	1972	5.2	1973	5.2	1974	5.2	1975	5.0	1976	5.0	1977	5.0	1978	5.0	1979	4.1	1980	4.1	1981	3.7	1982	3.7
1972	5.1	1973	5.1	1974	5.1	1975	4.8	1976	4.8	1977	4.8	1978	4.8	1979	4.0	1980	4.0	1981	3.5	1982	3.5	1983	3.5
1973	5.0	1974	5.0	1975	4.6	1976	4.6	1977	4.6	1978	4.6	1979	3.7	1980	3.7	1981	3.4	1982	3.4	1983	3.4	1984	1.9
1974	4.8	1975	4.4	1976	4.4	1977	4.4	1978	4.4	1979	3.5	1980	3.5	1981	3.2	1982	3.2	1983	3.2	1984	1.8	1985	1.4
1975	4.1	1976	4.1	1977	4.1	1978	4.1	1979	3.3	1980	3.3	1981	3.0	1982	2.9	1983	2.9	1984	1.7	1985	1.3	1986	1.3
1976	3.9	1977	3.9	1978	3.9	1979	3.0	1980	3.0	1981	2.7	1982	2.7	1983	2.7	1984	1.6	1985	1.2	1986	1.2	1987	1.2
1977	3.6	1978	3.6	1979	2.8	1980	2.8	1981	2.5	1982	2.5	1983	2.5	1984	1.4	1985	1.1	1986	1.1	1987	1.1	1988	1.1
1978	3.3	1979	2.5	1980	2.5	1981	2.2	1982	2.2	1983	2.2	1984	1.3	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0
1979	2.1	1980	2.1	1981	1.9	1982	1.9	1983	1.9	1984	1.1	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8
1980	1.7	1981	1.6	1982	1.6	1983	1.6	1984	0.9	1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7
1981	1.2	1982	1.2	1983	1.2	1984	0.7	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5	1992	0.5
1982	0.9	1983	0.9	1984	0.6	1985	0.4	1986	0.4	1987	0.4	1988	0.4	1989	0.4	1990	0.4	1991	0.4	1992	0.4	1993	0.4

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.2.4A.

DATE: MARCH 31, 1981

TABLE 1.2.2B

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	112.2	1952	112.2	1953	112.2	1954	112.2	1955	112.2	1956	112.2	1957	112.2	1958	112.2	1959	112.2	1960	112.2	1961	112.2	1962	112.2
1952	111.2	1953	111.2	1954	111.2	1955	111.2	1956	111.2	1957	111.2	1958	111.2	1959	111.2	1960	111.2	1961	111.2	1962	111.2	1963	111.2
1953	110.2	1954	110.2	1955	110.2	1956	110.2	1957	110.2	1958	110.2	1959	110.2	1960	110.2	1961	110.2	1962	110.2	1963	110.2	1964	110.2
1954	109.1	1955	109.1	1956	109.1	1957	109.1	1958	109.1	1959	109.1	1960	109.1	1961	109.1	1962	109.1	1963	109.1	1964	109.1	1965	109.1
1955	108.0	1956	108.0	1957	108.0	1958	108.0	1959	108.0	1960	108.0	1961	108.0	1962	108.0	1963	108.0	1964	108.0	1965	108.0	1966	108.0
1956	106.8	1957	106.8	1958	106.8	1959	106.8	1960	106.8	1961	106.8	1962	106.8	1963	106.8	1964	106.8	1965	106.8	1966	106.8	1967	106.8
1957	105.5	1958	105.5	1959	105.5	1960	105.5	1961	105.5	1962	105.5	1963	105.5	1964	105.5	1965	105.5	1966	105.5	1967	105.5	1968	87.2
1958	104.2	1959	104.2	1960	104.2	1961	104.2	1962	104.2	1963	104.2	1964	104.2	1965	104.2	1966	104.2	1967	104.2	1968	85.7	1969	85.7
1959	102.8	1960	102.8	1961	102.8	1962	102.8	1963	102.8	1964	102.8	1965	102.8	1966	102.8	1967	102.8	1968	84.1	1969	84.1	1970	76.2
1960	101.3	1961	101.3	1962	101.3	1963	101.3	1964	101.3	1965	101.3	1966	101.3	1967	101.3	1968	82.4	1969	82.4	1970	74.1	1971	74.1
1961	99.6	1962	99.6	1963	99.6	1964	99.6	1965	99.6	1966	99.6	1967	99.6	1968	80.6	1969	80.6	1970	71.9	1971	71.9	1972	64.0
1962	97.9	1963	97.9	1964	97.9	1965	97.9	1966	97.9	1967	97.9	1968	78.6	1969	78.6	1970	69.5	1971	69.5	1972	62.1	1973	62.1
1963	96.1	1964	96.1	1965	96.1	1966	96.1	1967	96.1	1968	76.5	1969	76.5	1970	67.0	1971	67.0	1972	60.1	1973	60.1	1974	60.1
1964	94.1	1965	94.1	1966	94.1	1967	94.1	1968	74.3	1969	74.3	1970	64.2	1971	64.2	1972	58.0	1973	58.0	1974	58.0	1975	45.1
1965	92.0	1966	92.0	1967	92.0	1968	71.9	1969	71.9	1970	61.2	1971	61.2	1972	55.6	1973	55.6	1974	55.6	1975	42.3	1976	42.3
1966	89.6	1967	89.6	1968	69.2	1969	69.2	1970	58.0	1971	58.0	1972	53.1	1973	53.1	1974	53.1	1975	39.3	1976	39.3	1977	39.3
1967	87.0	1968	66.3	1969	66.3	1970	54.4	1971	54.4	1972	50.3	1973	50.3	1974	50.3	1975	36.0	1976	36.0	1977	36.0	1978	36.0
1968	63.0	1969	63.0	1970	50.3	1971	50.3	1972	47.1	1973	47.1	1974	47.1	1975	32.4	1976	32.4	1977	32.4	1978	32.4	1979	21.4
1969	59.3	1970	45.8	1971	45.8	1972	43.6	1973	43.6	1974	43.6	1975	28.2	1976	28.2	1977	28.2	1978	28.2	1979	17.3	1980	17.3
1970	42.8	1971	42.8	1972	41.3	1973	41.3	1974	41.3	1975	25.5	1976	25.5	1977	25.5	1978	25.5	1979	14.5	1980	14.5	1981	12.3

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	112.2	1964	112.2	1965	112.2	1966	112.2	1967	112.2	1968	94.8	1969	94.8	1970	89.3	1971	89.3	1972	77.6	1973	77.6	1974	77.6
1964	111.2	1965	111.2	1966	111.2	1967	111.2	1968	93.6	1969	93.6	1970	88.0	1971	88.0	1972	76.5	1973	76.5	1974	76.5	1975	66.8
1965	110.2	1966	110.2	1967	110.2	1968	92.5	1969	92.5	1970	86.6	1971	86.6	1972	75.4	1973	75.4	1974	75.4	1975	65.5	1976	65.5
1966	109.1	1967	109.1	1968	91.3	1969	91.3	1970	85.1	1971	85.1	1972	74.2	1973	74.2	1974	74.2	1975	64.1	1976	64.1	1977	64.1
1967	108.0	1968	90.0	1969	90.0	1970	83.5	1971	83.5	1972	73.0	1973	73.0	1974	73.0	1975	62.7	1976	62.7	1977	62.7	1978	62.7
1968	88.7	1969	88.7	1970	81.8	1971	81.8	1972	71.7	1973	71.7	1974	71.7	1975	61.2	1976	61.2	1977	61.2	1978	61.2	1979	50.2
1969	87.2	1970	80.1	1971	80.1	1972	70.3	1973	70.3	1974	70.3	1975	59.5	1976	59.5	1977	59.5	1978	59.5	1979	48.6	1980	48.6
1970	78.2	1971	78.2	1972	68.9	1973	68.9	1974	68.9	1975	57.8	1976	57.8	1977	57.8	1978	57.8	1979	46.9	1980	46.9	1981	39.8
1971	76.2	1972	67.3	1973	67.3	1974	67.3	1975	56.0	1976	56.0	1977	56.0	1978	56.0	1979	45.0	1980	45.0	1981	38.3	1982	37.0
1972	65.7	1973	65.7	1974	65.7	1975	54.1	1976	54.1	1977	54.1	1978	54.1	1979	43.1	1980	43.1	1981	36.7	1982	35.4	1983	35.4
1973	64.0	1974	64.0	1975	52.1	1976	52.1	1977	52.1	1978	52.1	1979	41.1	1980	41.1	1981	34.9	1982	33.8	1983	33.8	1984	19.0
1974	62.1	1975	49.9	1976	49.9	1977	49.9	1978	49.9	1979	38.9	1980	38.9	1981	33.1	1982	32.0	1983	32.0	1984	17.9	1985	16.9
1975	47.6	1976	47.6	1977	47.6	1978	47.6	1979	36.6	1980	36.6	1981	31.1	1982	30.1	1983	30.1	1984	16.8	1985	15.6	1986	15.6
1976	45.1	1977	45.1	1978	45.1	1979	34.1	1980	34.1	1981	29.0	1982	28.0	1983	28.0	1984	15.6	1985	14.2	1986	14.2	1987	14.2
1977	42.3	1978	42.3	1979	31.3	1980	31.3	1981	26.6	1982	25.7	1983	25.7	1984	14.4	1985	12.7	1986	12.7	1987	12.7	1988	12.7
1978	39.3	1979	28.4	1980	28.4	1981	24.1	1982	23.3	1983	23.3	1984	13.0	1985	11.0	1986	11.0	1987	11.0	1988	11.0	1989	11.0
1979	25.1	1980	25.1	1981	21.3	1982	20.6	1983	20.6	1984	11.4	1985	9.2	1986	9.2	1987	9.2	1988	9.2	1989	9.2	1990	9.2
1980	21.4	1981	18.2	1982	17.6	1983	17.6	1984	9.7	1985	7.2	1986	7.2	1987	7.2	1988	7.2	1989	7.2	1990	7.2	1991	7.2
1981	14.7	1982	14.2	1983	14.2	1984	7.7	1985	4.9	1986	4.9	1987	4.9	1988	4.9	1989	4.9	1990	4.9	1991	4.9	1992	4.9
1982	11.9	1983	11.9	1984	6.4	1985	3.3	1986	3.3	1987	3.3	1988	3.3	1989	3.3	1990	3.3	1991	3.3	1992	3.3	1993	3.3

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.2.4A.

DATE: MARCH 31, 1981

TABLE 1.2.2C

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	3.4	1952	3.4	1953	3.4	1954	3.4	1955	3.4	1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4
1952	3.4	1953	3.4	1954	3.4	1955	3.4	1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4
1953	3.4	1954	3.4	1955	3.4	1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4
1954	3.4	1955	3.4	1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4
1955	3.4	1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4
1956	3.4	1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4
1957	3.4	1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3
1958	3.4	1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3
1959	3.4	1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3
1960	3.4	1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3
1961	3.4	1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3
1962	3.4	1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.2
1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.2	1974	3.2
1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.1	1974	3.1	1975	3.2
1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.1	1974	3.1	1975	3.2	1976	3.2
1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.0	1974	3.0	1975	3.1	1976	3.1	1977	3.1
1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.0	1974	3.0	1975	3.1	1976	3.1	1977	3.1	1978	3.1
1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.0	1974	3.0	1975	3.0	1976	3.0	1977	3.0	1978	3.0	1979	2.0
1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	2.9	1974	2.9	1975	3.0	1976	3.0	1977	3.0	1978	3.0	1979	1.9	1980	1.9
1970	4.3	1971	4.3	1972	4.3	1973	2.9	1974	2.9	1975	3.0	1976	3.0	1977	3.0	1978	3.0	1979	1.9	1980	1.9	1981	1.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	3.4	1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.5	1974	3.5
1964	3.4	1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.4	1974	3.4	1975	3.5
1965	3.4	1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.4	1974	3.4	1975	3.5	1976	3.5
1966	3.4	1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.4	1974	3.4	1975	3.5	1976	3.5	1977	3.5
1967	3.4	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.4	1974	3.4	1975	3.5	1976	3.5	1977	3.5	1978	3.5
1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.4	1974	3.4	1975	3.4	1976	3.4	1977	3.4	1978	3.4	1979	3.1
1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	3.4	1974	3.4	1975	3.4	1976	3.4	1977	3.4	1978	3.4	1979	3.0	1980	3.0
1970	4.3	1971	4.3	1972	4.3	1973	3.3	1974	3.3	1975	3.4	1976	3.4	1977	3.4	1978	3.4	1979	2.9	1980	2.9	1981	2.9
1971	4.3	1972	4.3	1973	3.3	1974	3.3	1975	3.4	1976	3.4	1977	3.4	1978	3.4	1979	2.9	1980	2.9	1981	2.9	1982	2.9
1972	4.3	1973	3.3	1974	3.3	1975	3.4	1976	3.4	1977	3.4	1978	3.4	1979	2.9	1980	2.8	1981	2.8	1982	2.9	1983	2.9
1973	3.3	1974	3.3	1975	3.3	1976	3.3	1977	3.3	1978	3.3	1979	2.8	1980	2.8	1981	2.7	1982	2.8	1983	2.8	1984	2.2
1974	3.2	1975	3.3	1976	3.3	1977	3.3	1978	3.3	1979	2.7	1980	2.7	1981	2.7	1982	2.7	1983	2.7	1984	2.1	1985	1.4
1975	3.3	1976	3.3	1977	3.3	1978	3.3	1979	2.6	1980	2.6	1981	2.6	1982	2.6	1983	2.6	1984	2.0	1985	1.2	1986	1.2
1976	3.2	1977	3.2	1978	3.2	1979	2.6	1980	2.6	1981	2.6	1982	2.6	1983	2.5	1984	1.9	1985	1.1	1986	1.1	1987	1.1
1977	3.2	1978	3.2	1979	2.5	1980	2.5	1981	2.5	1982	2.5	1983	2.4	1984	1.8	1985	1.0	1986	1.0	1987	1.0	1988	1.0
1978	3.2	1979	2.4	1980	2.4	1981	2.4	1982	2.4	1983	2.4	1984	1.7	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9
1979	2.2	1980	2.2	1981	2.2	1982	2.3	1983	2.3	1984	1.6	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8
1980	2.1	1981	2.1	1982	2.2	1983	2.2	1984	1.6	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1981	2.0	1982	2.0	1983	2.0	1984	1.5	1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7	1992	0.7
1982	1.9	1983	1.9	1984	1.4	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.2.4A.

DATE: MARCH 31, 1981

TABLE 1.2.3

IDLE EMISSION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS 1

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1968	1.32	0.03
	1968-1969	1.07	0.06
	1970-1971	0.54	0.07
	1972-1974	0.72	0.04
	1975-1978	0.37	0.06
	1979-1980	0.07	0.02
	1981	0.06	0.02
	1982-1983	0.06	0.02
	1984	0.04	0.01
	1985+	0.03	0.01
CO	Pre-1968	13.76	0.40
	1968-1969	13.99	0.63
	1970-1971	11.84	0.88
	1972-1974	12.66	0.76
	1975-1978	6.27	0.72
	1979-1980	1.57	0.32
	1981	1.31	0.27
	1982-1983	1.19	0.24
	1984	0.69	0.14
	1985+	0.34	0.18
NOx	Pre-1968	0.09	0.0
	1968-1972	0.17	0.0
	1973-1974	0.14	0.0
	1975-1978	0.06	0.0
	1979-1981	0.06	0.0
	1982-1983	0.06	0.0
	1984	0.05	0.0
	1985+	0.02	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.2.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per truck *	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.097	15600.	0.032	15600.	1950.
2	0.094	14000.	0.094	15200.	11650.
3	0.085	12500.	0.085	13625.	26053.
4	0.061	11200.	0.061	12175.	38934.
5	0.091	10100.	0.091	10925.	50466.
6	0.099	9400.	0.099	9925.	60853.
7	0.076	8600.	0.076	9200.	70425.
8	0.060	8000.	0.060	8450.	79231.
9	0.044	7500.	0.044	7875.	87384.
10	0.048	7000.	0.048	7375.	95009.
11	0.046	6600.	0.046	6900.	102137.
12	0.033	6200.	0.033	6500.	108837.
13	0.035	5900.	0.035	6125.	115140.
14	0.033	5500.	0.033	5800.	121112.
15	0.026	5200.	0.026	5425.	126715.
16	0.021	5000.	0.021	5150.	131993.
17	0.015	4700.	0.015	4925.	137040.
18	0.011	4400.	0.011	4625.	141815.
19	0.010	4400.	0.010	4400.	146299.
20+	0.013	4400.	0.013	4400.	150699.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 1.2.4B

FLEET SALES FRACTION* FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

Model Years	Sales Fraction
Pre-1978	1.000
1978	0.991
1979	0.972
1980	0.966
1981	0.953
1982	0.925
1983	0.911
1984	0.905
1985	0.886
1986	0.862
1987	0.835
1988	0.824
1989	0.813
1990	0.803
1991+	0.800

* The estimated fraction of the light duty truck model year fleet which is gasoline powered.

DATE: MARCH 31, 1981

TABLE 1.2.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS 1
JANUARY 1, 1985

Model Years	(A) LDT1 Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDGT1 Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.032	0.886	0.029	0.032	15600.	495.4	0.051
1984	0.094	0.905	0.086	0.095	15200.	1443.9	0.150
1983	0.085	0.911	0.078	0.087	13625.	1178.8	0.122
1982	0.061	0.925	0.057	0.063	12175.	766.8	0.079
1981	0.091	0.953	0.087	0.096	10925.	1051.2	0.109
1980	0.099	0.966	0.096	0.107	9925.	1057.5	0.110
1979	0.076	0.972	0.074	0.082	9200.	753.9	0.078
1978	0.060	0.991	0.059	0.066	8450.	557.2	0.058
1977	0.044	1.000	0.044	0.049	7875.	383.1	0.040
1976	0.048	1.000	0.048	0.054	7375.	394.8	0.041
1975	0.046	1.000	0.046	0.051	6900.	350.3	0.036
1974	0.033	1.000	0.033	0.037	6500.	239.7	0.025
1973	0.035	1.000	0.035	0.039	6125.	238.1	0.025
1972	0.033	1.000	0.033	0.037	5800.	212.6	0.022
1971	0.026	1.000	0.026	0.029	5425.	157.3	0.016
1970	0.021	1.000	0.021	0.024	5150.	122.4	0.013
1969	0.015	1.000	0.015	0.017	4925.	83.2	0.009
1968	0.011	1.000	0.011	0.013	4625.	58.6	0.006
1967	0.010	1.000	0.010	0.012	4400.	50.8	0.005
1966-	0.013	1.000	0.013	0.014	4400.	61.1	0.006
		DAF:	0.900		TFNORM:	9656.6	

WHERE:

A = January 1 registration mix from Table 1.2.4A.

B = Fleet sales fractions from Table 1.2.4B.

D = Sales weighted fleet mileage accumulation rate from Table 1.2.4A, adjusted to January 1.

D(1) = Annual Miles(1)

D(MY1) = .25*(Annual Miles(MY1)) + .75*(Annual Miles(MY1-1)) , MY1=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 1.2.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*S^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5 , \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1968	0.231026E+01	-0.289572E+00	0.152990E-01	-0.446689E-03	0.648183E-05	-0.363456E-07
1968	0.239726E+01	-0.299985E+00	0.161351E-01	-0.487491E-03	0.729093E-05	-0.419769E-07
1969	0.240873E+01	-0.308187E+00	0.168168E-01	-0.506843E-03	0.753855E-05	-0.431596E-07
1970	0.223217E+01	-0.284985E+00	0.153833E-01	-0.456738E-03	0.673486E-05	-0.383798E-07
1971	0.225223E+01	-0.287778E+00	0.156820E-01	-0.473179E-03	0.707954E-05	-0.408456E-07
1972	0.234948E+01	-0.304959E+00	0.168416E-01	-0.509623E-03	0.759516E-05	-0.434963E-07
1973-1974	0.268382E+01	-0.344633E+00	0.195417E-01	-0.625720E-03	0.978442E-05	-0.583369E-07
1975+	0.239540E+01	-0.335781E+00	0.211609E-01	-0.731550E-03	0.120715E-04	-0.748566E-07
CO :						
PRE-1968	0.233989E+01	-0.296978E+00	0.160071E-01	-0.477396E-03	0.706752E-05	-0.403978E-07
1968	0.246551E+01	-0.305023E+00	0.160497E-01	-0.473969E-03	0.699075E-05	-0.399758E-07
1969	0.277804E+01	-0.319130E+00	0.153183E-01	-0.422327E-03	0.584948E-05	-0.314969E-07
1970	0.278899E+01	-0.327107E+00	0.162943E-01	-0.467573E-03	0.671906E-05	-0.374401E-07
1971	0.270743E+01	-0.331038E+00	0.176179E-01	-0.538583E-03	0.817402E-05	-0.477803E-07
1972	0.268454E+01	-0.332817E+00	0.176277E-01	-0.524123E-03	0.772221E-05	-0.437025E-07
1973-1974	0.283929E+01	-0.368756E+00	0.210782E-01	-0.676438E-03	0.106267E-04	-0.636405E-07
1975+	0.248747E+01	-0.391562E+00	0.270721E-01	-0.976178E-03	0.165270E-04	-0.104317E-06
NOx:						
PRE-1968	0.168635E+01	-0.118303E+00	0.654975E-02	-0.137139E-03	0.100849E-05	0.0
1968	0.122677E+01	-0.444978E-01	0.262476E-02	-0.567150E-04	0.434293E-06	0.0
1969	0.101743E+01	-0.118958E-01	0.914365E-03	-0.215740E-04	0.182300E-06	0.0
1970	0.987600E+00	-0.195674E-01	0.169645E-02	-0.404000E-04	0.328001E-06	0.0
1971	0.115917E+01	-0.444536E-01	0.296425E-02	-0.668990E-04	0.522365E-06	0.0
1972	0.128169E+01	-0.804874E-01	0.535735E-02	-0.118891E-03	0.901060E-06	0.0
1973-1974	0.783838E+00	0.328549E-03	0.106029E-02	-0.319350E-04	0.290389E-06	0.0
1975+	0.942131E+00	-0.423240E-01	0.386253E-02	-0.939853E-04	0.753883E-06	0.0

Where:
- s = average speed (mph)
- sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w. [1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 1.2.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1968	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1968-1969	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1970-1971	-0.21255E-01	-0.10888E-01	-0.52755E-03	-0.47925E-03	0.93659E-03	0.76666E-02
	1972-1974	-0.21427E-01	-0.66107E-02	-0.39442E-03	0.26288E-02	0.49731E-02	0.12320E-01
	1975-1980	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1981-1984	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1985+	-0.25217E-01	0.11959E-01	-0.56153E-02	-0.12627E-04	-0.36228E-02	0.78765E-02
CO	Pre-1968	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1968-1969	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1970-1971	-0.20843E-01	-0.21165E-01	-0.59951E-02	0.23603E-01	0.18253E-02	0.28483E-01
	1972-1974	-0.19091E-01	-0.13146E-01	-0.42373E-03	0.24717E-01	0.57982E-02	0.25848E-01
	1975-1980	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1981-1984	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1985+	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
NOx	Pre-1968	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1968-1972	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01
	1973-1974	0.38855E-02	-0.18301E-01	-0.24156E-02	-0.10925E-01	-0.21188E-02	-0.18042E-01
	1975-1978	-0.45504E-04	-0.71420E-02	-0.12575E-02	-0.87910E-02	-0.53153E-03	-0.75470E-02
	1979-1980	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1981-1984	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1985+	0.15668E-02	-0.34416E-01	0.59496E-03	-0.35871E-01	-0.24888E-02	-0.28830E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 1.2.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

DATE: MARCH 31, 1981

TABLE 1.2.7B

NORMALIZED BAG FRACTIONS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1968	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1968-1969	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1970-1971	1.345	0.178	0.919	0.118	0.894	0.093	1.000	0.124
	1972-1974	1.398	0.060	0.885	0.055	0.919	0.036	1.000	0.051
	1975-1980	2.092	0.248	0.649	0.254	0.846	0.152	1.000	0.225
	1981-1984	2.092	1.339	0.649	1.014	0.846	0.717	1.000	1.000
	1985+	2.961	0.164	0.407	0.598	0.652	0.566	1.000	0.500
CO	Pre-1968	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1968-1969	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1970-1971	1.553	0.109	0.933	0.079	0.711	0.038	1.000	0.074
	1972-1974	1.573	0.054	0.902	0.079	0.755	0.029	1.000	0.060
	1975-1980	2.413	0.143	0.608	0.180	0.681	0.068	1.000	0.142
	1981-1984	2.413	0.657	0.608	0.503	0.681	0.251	1.000	0.466
	1985+	3.184	0.551	0.345	0.589	0.601	0.479	1.000	0.551
NOx	Pre-1968	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1968-1972	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0
	1973-1974	1.262	0.022	0.770	0.004	1.242	0.027	1.000	0.014
	1975-1978	1.311	0.021	0.774	0.010	1.198	0.026	1.000	0.017
	1979-1980	1.393	0.050	0.754	0.052	1.172	0.079	1.000	0.059
	1981-1984	1.393	0.056	0.754	0.056	1.172	0.085	1.000	0.064
	1985+	1.801	0.169	0.653	0.141	1.059	0.296	1.000	0.189

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.2.8A

AIR CONDITIONING CORRECTION FACTORS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

* ACCF= U*V*(A + B*(T-75) -1) + 1

Model Years	HC		CO		NOx	
	A	B	A	B	A	B
Pre-1975	0.1023E+01	0.3344E-02	0.1202E+01	0.1808E-02	0.1299E+01	0.5643E-04
1975+	0.1000E+01	0.3512E-02	0.1130E+01	0.1528E-02	0.1221E+01	0.4262E-03

*WHERE:

ACCF = Air Conditioning Correction Factor
V = Fraction of vehicles which are equipped with AC given in Table 1.2.8B
U = Fraction of vehicles with AC that are using it = (DI-DILO)/(DIHI-DI), 0<=U<=1
DI = Discomfort index = (DB+WB)*.4+15
DILO = The highest discomfort index where no AC is used
DIHI = The lowest discomfort index where all vehicles with AC use it
DB = Dry bulb temperature (Fahrenheit)
WB = Wet bulb temperature (Fahrenheit)
T = Ambient temperature (Fahrenheit)

TABLE 1.2.8B

ESTIMATED FRACTION OF
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I
EQUIPPED WITH AIR CONDITIONING

Model Years	Fraction Equipped With Air Conditioning
Pre-1977	0.32
1977	0.52
1978+	0.39

DATE: MARCH 31, 1981

TABLE 1.2.9

EXTRA LOAD CORRECTION FACTORS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

* XLCF = (XLC-1)*U + 1

Model Years	Coefficients (XLC) HC	CO	NOx
Pre-1968	1.0786	1.2765	0.9535
1968-1969	1.0495	1.1384	1.0313
1970-1971	1.0852	1.2478	1.0313
1972	1.0556	1.1347	1.0313
1973-1974	1.0556	1.1347	1.0753
1975+	1.0455	1.3058	1.0719

* WHERE:
XLCF = Extra load correction factor
U = Fraction of VMT with an extra load
XLC = Correction factor coefficient

TABLE 1.2.10

TRAILER TOWING CORRECTION FACTORS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

* TTCF = (TTC-1)*U + 1

Model Years	Coefficients (TTC) HC	CO	NOx
Pre-1968	1.2614	1.9327	1.1184
1968-1969	1.2762	1.8940	1.1384
1970-1971	1.4598	2.4753	1.1384
1972	1.7288	2.1414	1.1384
1973-1974	1.7288	2.1414	1.2170
1975+	1.5909	3.9722	1.3875

* WHERE:
TTCF = Trailer towing correction factor
U = Fraction of VMT towing a trailer
TTC = Correction factor coefficient

DATE: MARCH 31, 1981

TABLE 1.3.1A

EXHAUST EMISSION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1970	9.57	0.18	10.47
	1970-1973	6.06	0.25	7.31
	1974-1978	6.06	0.17	6.91
	1979-1980	0.99	0.29	2.44
	1981	0.89	0.26	2.19
	1982-1983	0.88	0.26	2.18
	1984	0.58	0.14	1.28
	1985+	0.41	0.11	0.96
CO	Pre-1970	93.98	2.25	105.23
	1970-1973	57.09	2.55	69.84
	1974-1978	57.09	2.44	69.29
	1979-1980	13.92	2.86	28.22
	1981	11.85	2.43	24.00
	1982-1983	11.44	2.35	23.19
	1984	6.14	1.35	12.89
	1985+	3.01	1.59	10.96
NOx	Pre-1970	5.44	0.0	5.44
	1970-1973	6.45	0.0	6.45
	1974-1978	4.61	0.04	4.81
	1979-1981	1.85	0.10	2.35
	1982-1983	1.90	0.10	2.40
	1984	1.42	0.08	1.82
	1985+	0.59	0.09	1.04

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See sections A.1.2 and A.1.3 of Appendix A
for the emission standards.

DATE: MARCH 31, 1981

TABLE 1.3.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1968	12.70	3.05	31.90	33.70	5.70	7.80
1968-1978	12.70	3.05	31.90	33.70	0.0	2.10
1979-1980	1.56	3.05	2.65	33.70	0.0	0.22
1981+	0.63	3.05	1.07	33.70	0.0	0.09

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 1.3.2A

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	12.3	1952	12.3	1953	12.3	1954	12.3	1955	12.3	1956	12.3	1957	12.3	1958	12.3	1959	12.3	1960	12.3	1961	12.3	1962	12.3
1952	12.2	1953	12.2	1954	12.2	1955	12.2	1956	12.2	1957	12.2	1958	12.2	1959	12.2	1960	12.2	1961	12.2	1962	12.2	1963	12.2
1953	12.2	1954	12.2	1955	12.2	1956	12.2	1957	12.2	1958	12.2	1959	12.2	1960	12.2	1961	12.2	1962	12.2	1963	12.2	1964	12.2
1954	12.1	1955	12.1	1956	12.1	1957	12.1	1958	12.1	1959	12.1	1960	12.1	1961	12.1	1962	12.1	1963	12.1	1964	12.1	1965	12.1
1955	12.0	1956	12.0	1957	12.0	1958	12.0	1959	12.0	1960	12.0	1961	12.0	1962	12.0	1963	12.0	1964	12.0	1965	12.0	1966	12.0
1956	11.9	1957	11.9	1958	11.9	1959	11.9	1960	11.9	1961	11.9	1962	11.9	1963	11.9	1964	11.9	1965	11.9	1966	11.9	1967	11.9
1957	11.8	1958	11.8	1959	11.8	1960	11.8	1961	11.8	1962	11.8	1963	11.8	1964	11.8	1965	11.8	1966	11.8	1967	11.8	1968	11.8
1958	11.7	1959	11.7	1960	11.7	1961	11.7	1962	11.7	1963	11.7	1964	11.7	1965	11.7	1966	11.7	1967	11.7	1968	11.7	1969	11.7
1959	11.6	1960	11.6	1961	11.6	1962	11.6	1963	11.6	1964	11.6	1965	11.6	1966	11.6	1967	11.6	1968	11.6	1969	11.6	1970	8.8
1960	11.4	1961	11.4	1962	11.4	1963	11.4	1964	11.4	1965	11.4	1966	11.4	1967	11.4	1968	11.4	1969	11.4	1970	8.6	1971	8.6
1961	11.3	1962	11.3	1963	11.3	1964	11.3	1965	11.3	1966	11.3	1967	11.3	1968	11.3	1969	11.3	1970	8.5	1971	8.5	1972	8.5
1962	11.2	1963	11.2	1964	11.2	1965	11.2	1966	11.2	1967	11.2	1968	11.2	1969	11.2	1970	8.3	1971	8.3	1972	8.3	1973	8.3
1963	11.0	1964	11.0	1965	11.0	1966	11.0	1967	11.0	1968	11.0	1969	11.0	1970	8.1	1971	8.1	1972	8.1	1973	8.1	1974	7.4
1964	10.9	1965	10.9	1966	10.9	1967	10.9	1968	10.9	1969	10.9	1970	7.8	1971	7.8	1972	7.8	1973	7.8	1974	7.3	1975	7.3
1965	10.7	1966	10.7	1967	10.7	1968	10.7	1969	10.7	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	7.1	1975	7.1	1976	7.1
1966	10.5	1967	10.5	1968	10.5	1969	10.5	1970	7.3	1971	7.3	1972	7.3	1973	7.3	1974	6.9	1975	6.9	1976	6.9	1977	6.9
1967	10.3	1968	10.3	1969	10.3	1970	7.0	1971	7.0	1972	7.0	1973	7.0	1974	6.7	1975	6.7	1976	6.7	1977	6.7	1978	6.7
1968	10.0	1969	10.0	1970	6.7	1971	6.7	1972	6.7	1973	6.7	1974	6.5	1975	6.5	1976	6.5	1977	6.5	1978	6.5	1979	1.8
1969	9.8	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	6.3	1975	6.3	1976	6.3	1977	6.3	1978	6.3	1979	1.3	1980	1.3
1970	6.1	1971	6.1	1972	6.1	1973	6.1	1974	6.1	1975	6.1	1976	6.1	1977	6.1	1978	6.1	1979	1.0	1980	1.0	1981	0.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	12.3	1964	12.3	1965	12.3	1966	12.3	1967	12.3	1968	12.3	1969	12.3	1970	9.9	1971	9.9	1972	9.9	1973	9.9	1974	8.7
1964	12.2	1965	12.2	1966	12.2	1967	12.2	1968	12.2	1969	12.2	1970	9.8	1971	9.8	1972	9.8	1973	9.8	1974	8.6	1975	8.6
1965	12.2	1966	12.2	1967	12.2	1968	12.2	1969	12.2	1970	9.6	1971	9.6	1972	9.6	1973	9.6	1974	8.5	1975	8.5	1976	8.5
1966	12.1	1967	12.1	1968	12.1	1969	12.1	1970	9.5	1971	9.5	1972	9.5	1973	9.5	1974	8.4	1975	8.4	1976	8.4	1977	8.4
1967	12.0	1968	12.0	1969	12.0	1970	9.4	1971	9.4	1972	9.4	1973	9.4	1974	8.3	1975	8.3	1976	8.3	1977	8.3	1978	8.3
1968	11.9	1969	11.9	1970	9.3	1971	9.3	1972	9.3	1973	9.3	1974	8.2	1975	8.2	1976	8.2	1977	8.2	1978	8.2	1979	4.7
1969	11.8	1970	9.1	1971	9.1	1972	9.1	1973	9.1	1974	8.1	1975	8.1	1976	8.1	1977	8.1	1978	8.1	1979	4.5	1980	4.5
1970	9.0	1971	9.0	1972	9.0	1973	9.0	1974	8.0	1975	8.0	1976	8.0	1977	8.0	1978	8.0	1979	4.4	1980	4.4	1981	3.9
1971	8.8	1972	8.8	1973	8.8	1974	7.9	1975	7.9	1976	7.9	1977	7.9	1978	7.9	1979	4.2	1980	4.2	1981	3.8	1982	3.7
1972	8.6	1973	8.6	1974	7.8	1975	7.8	1976	7.8	1977	7.8	1978	7.8	1979	4.0	1980	4.0	1981	3.6	1982	3.6	1983	3.6
1973	8.5	1974	7.7	1975	7.7	1976	7.7	1977	7.7	1978	7.7	1979	3.8	1980	3.8	1981	3.4	1982	3.4	1983	3.4	1984	1.9
1974	7.6	1975	7.6	1976	7.6	1977	7.6	1978	7.6	1979	3.6	1980	3.6	1981	3.2	1982	3.2	1983	3.2	1984	1.8	1985	1.4
1975	7.4	1976	7.4	1977	7.4	1978	7.4	1979	3.3	1980	3.3	1981	3.0	1982	3.0	1983	3.0	1984	1.7	1985	1.3	1986	1.3
1976	7.3	1977	7.3	1978	7.3	1979	3.1	1980	3.1	1981	2.7	1982	2.7	1983	2.7	1984	1.6	1985	1.2	1986	1.2	1987	1.2
1977	7.1	1978	7.1	1979	2.8	1980	2.8	1981	2.5	1982	2.5	1983	2.5	1984	1.4	1985	1.1	1986	1.1	1987	1.1	1988	1.1
1978	6.9	1979	2.5	1980	2.5	1981	2.2	1982	2.2	1983	2.2	1984	1.3	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0
1979	2.1	1980	2.1	1981	1.9	1982	1.9	1983	1.9	1984	1.1	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8
1980	1.8	1981	1.6	1982	1.6	1983	1.6	1984	0.9	1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7
1981	1.2	1982	1.2	1983	1.2	1984	0.7	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5	1992	0.5
1982	0.9	1983	0.9	1984	0.6	1985	0.4	1986	0.4	1987	0.4	1988	0.4	1989	0.4	1990	0.4	1991	0.4	1992	0.4	1993	0.4

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.3.4A.

DATE: MARCH 31, 1981

TABLE 1.3.2B

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	128.3	1952	128.3	1953	128.3	1954	128.3	1955	128.3	1956	128.3	1957	128.3	1958	128.3	1959	128.3	1960	128.3	1961	128.3	1962	128.3
1952	127.3	1953	127.3	1954	127.3	1955	127.3	1956	127.3	1957	127.3	1958	127.3	1959	127.3	1960	127.3	1961	127.3	1962	127.3	1963	127.3
1953	126.3	1954	126.3	1955	126.3	1956	126.3	1957	126.3	1958	126.3	1959	126.3	1960	126.3	1961	126.3	1962	126.3	1963	126.3	1964	126.3
1954	125.2	1955	125.2	1956	125.2	1957	125.2	1958	125.2	1959	125.2	1960	125.2	1961	125.2	1962	125.2	1963	125.2	1964	125.2	1965	125.2
1955	124.0	1956	124.0	1957	124.0	1958	124.0	1959	124.0	1960	124.0	1961	124.0	1962	124.0	1963	124.0	1964	124.0	1965	124.0	1966	124.0
1956	122.9	1957	122.9	1958	122.9	1959	122.9	1960	122.9	1961	122.9	1962	122.9	1963	122.9	1964	122.9	1965	122.9	1966	122.9	1967	122.9
1957	121.6	1958	121.6	1959	121.6	1960	121.6	1961	121.6	1962	121.6	1963	121.6	1964	121.6	1965	121.6	1966	121.6	1967	121.6	1968	121.6
1958	120.2	1959	120.2	1960	120.2	1961	120.2	1962	120.2	1963	120.2	1964	120.2	1965	120.2	1966	120.2	1967	120.2	1968	120.2	1969	120.2
1959	118.8	1960	118.8	1961	118.8	1962	118.8	1963	118.8	1964	118.8	1965	118.8	1966	118.8	1967	118.8	1968	118.8	1969	118.8	1970	85.2
1960	117.3	1961	117.3	1962	117.3	1963	117.3	1964	117.3	1965	117.3	1966	117.3	1967	117.3	1968	117.3	1969	117.3	1970	83.5	1971	83.5
1961	115.6	1962	115.6	1963	115.6	1964	115.6	1965	115.6	1966	115.6	1967	115.6	1968	115.6	1969	115.6	1970	81.6	1971	81.6	1972	81.6
1962	113.9	1963	113.9	1964	113.9	1965	113.9	1966	113.9	1967	113.9	1968	113.9	1969	113.9	1970	79.7	1971	79.7	1972	79.7	1973	79.7
1963	112.0	1964	112.0	1965	112.0	1966	112.0	1967	112.0	1968	112.0	1969	112.0	1970	77.6	1971	77.6	1972	77.6	1973	77.6	1974	76.7
1964	110.0	1965	110.0	1966	110.0	1967	110.0	1968	110.0	1969	110.0	1970	75.3	1971	75.3	1972	75.3	1973	75.3	1974	74.5	1975	74.5
1965	107.9	1966	107.9	1967	107.9	1968	107.9	1969	107.9	1970	72.8	1971	72.8	1972	72.8	1973	72.8	1974	72.1	1975	72.1	1976	72.1
1966	105.5	1967	105.5	1968	105.5	1969	105.5	1970	70.1	1971	70.1	1972	70.1	1973	70.1	1974	69.6	1975	69.6	1976	69.6	1977	69.6
1967	102.8	1968	102.8	1969	102.8	1970	67.1	1971	67.1	1972	67.1	1973	67.1	1974	66.7	1975	66.7	1976	66.7	1977	66.7	1978	66.7
1968	99.9	1969	99.9	1970	63.8	1971	63.8	1972	63.8	1973	63.8	1974	63.5	1975	63.5	1976	63.5	1977	63.5	1978	63.5	1979	21.5
1969	96.6	1970	60.1	1971	60.1	1972	60.1	1973	60.1	1974	60.0	1975	60.0	1976	60.0	1977	60.0	1978	60.0	1979	17.3	1980	17.3
1970	57.6	1971	57.6	1972	57.6	1973	57.6	1974	57.6	1975	57.6	1976	57.6	1977	57.6	1978	57.6	1979	14.5	1980	14.5	1981	12.3

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	128.3	1964	128.3	1965	128.3	1966	128.3	1967	128.3	1968	128.3	1969	128.3	1970	96.0	1971	96.0	1972	96.0	1973	96.0	1974	94.3
1964	127.3	1965	127.3	1966	127.3	1967	127.3	1968	127.3	1969	127.3	1970	94.8	1971	94.8	1972	94.8	1973	94.8	1974	93.2	1975	93.2
1965	126.3	1966	126.3	1967	126.3	1968	126.3	1969	126.3	1970	93.7	1971	93.7	1972	93.7	1973	93.7	1974	92.1	1975	92.1	1976	92.1
1966	125.2	1967	125.2	1968	125.2	1969	125.2	1970	92.5	1971	92.5	1972	92.5	1973	92.5	1974	90.9	1975	90.9	1976	90.9	1977	90.9
1967	124.0	1968	124.0	1969	124.0	1970	91.2	1971	91.2	1972	91.2	1973	91.2	1974	89.7	1975	89.7	1976	89.7	1977	89.7	1978	89.7
1968	122.9	1969	122.9	1970	89.8	1971	89.8	1972	89.8	1973	89.8	1974	88.4	1975	88.4	1976	88.4	1977	88.4	1978	88.4	1979	50.6
1969	121.6	1970	88.4	1971	88.4	1972	88.4	1973	88.4	1974	87.0	1975	87.0	1976	87.0	1977	87.0	1978	87.0	1979	49.0	1980	49.0
1970	86.8	1971	86.8	1972	86.8	1973	86.8	1974	85.5	1975	85.5	1976	85.5	1977	85.5	1978	85.5	1979	47.3	1980	47.3	1981	40.2
1971	85.2	1972	85.2	1973	85.2	1974	84.0	1975	84.0	1976	84.0	1977	84.0	1978	84.0	1979	45.4	1980	45.4	1981	38.6	1982	37.3
1972	83.5	1973	83.5	1974	82.3	1975	82.3	1976	82.3	1977	82.3	1978	82.3	1979	43.5	1980	43.5	1981	37.0	1982	35.8	1983	35.8
1973	81.6	1974	80.6	1975	80.6	1976	80.6	1977	80.6	1978	80.6	1979	41.5	1980	41.5	1981	35.2	1982	34.1	1983	34.1	1984	19.1
1974	78.7	1975	78.7	1976	78.7	1977	78.7	1978	78.7	1979	39.2	1980	39.2	1981	33.4	1982	32.3	1983	32.3	1984	18.1	1985	17.1
1975	76.7	1976	76.7	1977	76.7	1978	76.7	1979	36.9	1980	36.9	1981	31.4	1982	30.3	1983	30.3	1984	17.0	1985	15.8	1986	15.8
1976	74.5	1977	74.5	1978	74.5	1979	34.3	1980	34.3	1981	29.2	1982	28.2	1983	28.2	1984	15.8	1985	14.4	1986	14.4	1987	14.4
1977	72.1	1978	72.1	1979	31.6	1980	31.6	1981	26.8	1982	25.9	1983	25.9	1984	14.5	1985	12.8	1986	12.8	1987	12.8	1988	12.8
1978	69.6	1979	28.5	1980	28.5	1981	24.3	1982	23.5	1983	23.5	1984	13.0	1985	11.1	1986	11.1	1987	11.1	1988	11.1	1989	11.1
1979	25.2	1980	25.2	1981	21.4	1982	20.7	1983	20.7	1984	11.5	1985	9.3	1986	9.3	1987	9.3	1988	9.3	1989	9.3	1990	9.3
1980	21.5	1981	18.3	1982	17.6	1983	17.6	1984	9.7	1985	7.2	1986	7.2	1987	7.2	1988	7.2	1989	7.2	1990	7.2	1991	7.2
1981	14.7	1982	14.2	1983	14.2	1984	7.7	1985	4.9	1986	4.9	1987	4.9	1988	4.9	1989	4.9	1990	4.9	1991	4.9	1992	4.9
1982	11.9	1983	11.9	1984	6.4	1985	3.3	1986	3.3	1987	3.3	1988	3.3	1989	3.3	1990	3.3	1991	3.3	1992	3.3	1993	3.3

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.3.4A.

DATE: MARCH 31, 1981

TABLE 1.3.2C

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	5.4	1952	5.4	1953	5.4	1954	5.4	1955	5.4	1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4
1952	5.4	1953	5.4	1954	5.4	1955	5.4	1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4
1953	5.4	1954	5.4	1955	5.4	1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4
1954	5.4	1955	5.4	1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4
1955	5.4	1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4
1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4
1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4
1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4
1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4
1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4
1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4
1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4
1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	4.9
1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	4.9	1975	4.9
1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	4.9	1975	4.9	1976	4.9
1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	4.8	1975	4.8	1976	4.8	1977	4.8
1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	4.8	1975	4.8	1976	4.8	1977	4.8	1978	4.8
1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	4.7	1975	4.7	1976	4.7	1977	4.7	1978	4.7	1979	2.1
1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	4.7	1975	4.7	1976	4.7	1977	4.7	1978	4.7	1979	2.0	1980	2.0
1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	4.6	1975	4.6	1976	4.6	1977	4.6	1978	4.6	1979	1.9	1980	1.9	1981	1.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	5.2
1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	5.2	1975	5.2
1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	5.2	1975	5.2	1976	5.2
1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	5.1	1975	5.1	1976	5.1	1977	5.1
1967	5.4	1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	5.1	1975	5.1	1976	5.1	1977	5.1	1978	5.1
1968	5.4	1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	5.1	1975	5.1	1976	5.1	1977	5.1	1978	5.1	1979	3.1
1969	5.4	1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	5.1	1975	5.1	1976	5.1	1977	5.1	1978	5.1	1979	3.0	1980	3.0
1970	6.4	1971	6.4	1972	6.4	1973	6.4	1974	5.1	1975	5.1	1976	5.1	1977	5.1	1978	5.1	1979	3.0	1980	3.0	1981	3.0
1971	6.4	1972	6.4	1973	6.4	1974	5.1	1975	5.1	1976	5.1	1977	5.1	1978	5.1	1979	3.0	1980	3.0	1981	3.0	1982	3.0
1972	6.4	1973	6.4	1974	5.0	1975	5.0	1976	5.0	1977	5.0	1978	5.0	1979	2.9	1980	2.9	1981	2.9	1982	2.9	1983	2.9
1973	6.4	1974	5.0	1975	5.0	1976	5.0	1977	5.0	1978	5.0	1979	2.8	1980	2.8	1981	2.8	1982	2.9	1983	2.9	1984	2.2
1974	5.0	1975	5.0	1976	5.0	1977	5.0	1978	5.0	1979	2.7	1980	2.7	1981	2.7	1982	2.8	1983	2.8	1984	2.1	1985	1.4
1975	4.9	1976	4.9	1977	4.9	1978	4.9	1979	2.7	1980	2.7	1981	2.7	1982	2.7	1983	2.7	1984	2.1	1985	1.3	1986	1.3
1976	4.9	1977	4.9	1978	4.9	1979	2.6	1980	2.6	1981	2.6	1982	2.6	1983	2.6	1984	2.0	1985	1.2	1986	1.2	1987	1.2
1977	4.9	1978	4.9	1979	2.5	1980	2.5	1981	2.5	1982	2.5	1983	2.5	1984	1.9	1985	1.1	1986	1.1	1987	1.1	1988	1.1
1978	4.8	1979	2.4	1980	2.4	1981	2.4	1982	2.4	1983	2.4	1984	1.8	1985	1.1	1986	1.1	1987	1.1	1988	1.1	1989	1.1
1979	2.2	1980	2.2	1981	2.2	1982	2.3	1983	2.3	1984	1.7	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9
1980	2.1	1981	2.1	1982	2.2	1983	2.2	1984	1.6	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1981	2.0	1982	2.0	1983	2.0	1984	1.5	1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7	1992	0.7
1982	1.9	1983	1.9	1984	1.4	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year *MY* on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.3.4A.

DATE: MARCH 31, 1981

TABLE 1.3.3

IDLE EMISSION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1970	1.67	0.03
	1970-1973	1.06	0.04
	1974-1978	1.06	0.03
	1979-1980	0.07	0.02
	1981	0.06	0.02
	1982-1983	0.06	0.02
	1984	0.04	0.01
	1985+	0.03	0.01
CO	Pre-1970	18.98	0.45
	1970-1973	11.53	0.52
	1974-1978	11.53	0.49
	1979-1980	1.57	0.32
	1981	1.31	0.27
	1982-1983	1.19	0.24
	1984	0.69	0.14
	1985+	0.34	0.18
NOx	Pre-1970	0.08	0.0
	1970-1973	0.10	0.0
	1974-1978	0.07	0.0
	1979-1981	0.06	0.0
	1982-1983	0.06	0.0
	1984	0.05	0.0
	1985+	0.02	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.3.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per truck *	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.245	15800.	0.082	15800.	1975.
2	0.207	14200.	0.207	15400.	11800.
3	0.155	12600.	0.155	13800.	26400.
4	0.097	11400.	0.097	12300.	39412.
5	0.057	10300.	0.057	11125.	51116.
6	0.056	9500.	0.056	10100.	61700.
7	0.039	8700.	0.039	9300.	71400.
8	0.030	8100.	0.030	8550.	80306.
9	0.023	7600.	0.023	7975.	88559.
10	0.020	7100.	0.020	7475.	96284.
11	0.017	6600.	0.017	6975.	103509.
12	0.011	6300.	0.011	6525.	110240.
13	0.010	6000.	0.010	6225.	116615.
14	0.008	5500.	0.008	5875.	122684.
15	0.005	5200.	0.005	5425.	128315.
16	0.006	5100.	0.006	5175.	133596.
17	0.004	4700.	0.004	5000.	138712.
18	0.003	4400.	0.003	4625.	143515.
19	0.003	4400.	0.003	4400.	147999.
20+	0.004	4400.	0.004	4400.	152399.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 1.3.4B

FLEET SALES FRACTION* FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

Model Years	Sales Fraction
Pre-1978	1.000
1978	0.991
1979	0.972
1980	0.966
1981	0.953
1982	0.925
1983	0.911
1984	0.905
1985	0.886
1986	0.862
1987	0.835
1988	0.824
1989	0.813
1990	0.803
1991+	0.800

* The estimated fraction of the light duty truck model year fleet which is gasoline powered.

DATE: MARCH 31, 1981

TABLE 1.3.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II
JANUARY 1, 1985

Model Years	(A) LDT2 Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDGT2 Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.082	0.886	0.072	0.093	15800.	1463.0	0.119
1984	0.207	0.905	0.187	0.240	15400.	3695.0	0.301
1983	0.155	0.911	0.141	0.181	13800.	2500.6	0.203
1982	0.097	0.925	0.090	0.115	12300.	1413.5	0.115
1981	0.057	0.953	0.055	0.070	11125.	776.7	0.063
1980	0.056	0.966	0.054	0.069	10100.	699.8	0.057
1979	0.039	0.972	0.038	0.049	9300.	452.7	0.037
1978	0.030	0.991	0.029	0.038	8550.	321.2	0.026
1977	0.023	1.000	0.023	0.030	7975.	235.9	0.019
1976	0.020	1.000	0.020	0.026	7475.	192.4	0.016
1975	0.017	1.000	0.017	0.022	6975.	154.5	0.013
1974	0.011	1.000	0.011	0.014	6525.	93.6	0.008
1973	0.010	1.000	0.010	0.012	6225.	77.3	0.006
1972	0.008	1.000	0.008	0.010	5875.	60.2	0.005
1971	0.005	1.000	0.005	0.007	5425.	37.5	0.003
1970	0.006	1.000	0.006	0.007	5175.	36.5	0.003
1969	0.004	1.000	0.004	0.006	5000.	28.8	0.002
1968	0.003	1.000	0.003	0.004	4625.	16.6	0.001
1967	0.003	1.000	0.003	0.003	4400.	14.7	0.001
1966-	0.004	1.000	0.004	0.005	4400.	21.4	0.002
		DAF:	0.781		TFNORM:	12291.9	

WHERE:

A = January 1 registration mix from Table 1.3.4A.

B = Fleet sales fractions from Table 1.3.4B.

D = Sales weighted fleet mileage accumulation rate from Table 1.3.4A, adjusted to January 1.

D(1) = Annual Miles(1)

D(MYI)= .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 1.3.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*S^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5, \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1970	0.231026E+01	-0.289572E+00	0.152990E-01	-0.446689E-03	0.646183E-05	-0.363456E-07
1970-1973	0.240873E+01	-0.308187E+00	0.168168E-01	-0.506843E-03	0.753855E-05	-0.431596E-07
1974-1978	0.268382E+01	-0.344633E+00	0.195417E-01	-0.625720E-03	0.978442E-05	-0.583369E-07
1979+	0.239540E+01	-0.335781E+00	0.211609E-01	-0.731550E-03	0.120715E-04	-0.748566E-07
CO :						
PRE-1970	0.233989E+01	-0.296978E+00	0.160071E-01	-0.477396E-03	0.706752E-05	-0.403978E-07
1970-1973	0 277804E+01	-0.319130E+00	0.153183E-01	-0.422327E-03	0.584948E-05	-0.314969E-07
1974-1978	0.283929E+01	-0.368756E+00	0.210782E-01	-0.676438E-03	0.106267E-04	-0.636405E-07
1979+	0.248747E+01	-0.391562E+00	0.270721E-01	-0.976178E-03	0.165270E-04	-0.104317E-06
NOx:						
PRE-1970	0.168635E+01	-0.118303E+00	0.654975E-02	-0.137139E-03	0.100849E-05	0.0
1970-1973	0.101743E+01	-0.118958E-01	0.914365E-03	-0.215740E-04	0.182300E-06	0.0
1974-1978	0.783838E+00	0.328549E-03	0.106029E-02	-0.319350E-04	0.290389E-06	0.0
1979+	0.942131E+00	-0.423240E-01	0.386253E-02	-0.939853E-04	0.753883E-06	0.0

Where:
s = average speed (mph)
sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w.
[1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 1.3.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1970	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1970-1973	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1974-1978	-0.21427E-01	-0.66107E-02	-0.39442E-03	0.26288E-02	0.49731E-02	0.12320E-01
	1979-1980	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1981-1984	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1985+	-0.25217E-01	0.11959E-01	-0.56153E-02	-0.12627E-04	-0.36228E-02	0.78765E-02
CO	Pre-1970	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1970-1973	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1974-1978	-0.19091E-01	-0.13146E-01	-0.42373E-03	0.24717E-01	0.57982E-02	0.25848E-01
	1979-1980	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1981-1984	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1985+	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
NOx	Pre-1970	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1970-1973	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01
	1974-1978	0.38855E-02	-0.18301E-01	-0.24156E-02	-0.10925E-01	-0.21188E-02	-0.18042E-01
	1979-1980	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1981-1984	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1985+	0.15668E-02	-0.34416E-01	0.59496E-03	-0.35871E-01	-0.24888E-02	-0.28830E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 1.3.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

DATE: MARCH 31, 1981

TABLE 1.3.7B

NORMALIZED BAG FRACTIONS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1970	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1970-1973	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1974-1978	1.398	0.060	0.885	0.055	0.919	0.036	1.000	0.051
	1979-1980	2.092	0.248	0.649	0.254	0.846	0.152	1.000	0.225
	1981-1984	2.092	1.339	0.649	1.014	0.846	0.717	1.000	1.000
	1985+	2.961	0.164	0.407	0.598	0.652	0.566	1.000	0.500
CO	Pre-1970	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1970-1973	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1974-1978	1.573	0.054	0.902	0.079	0.755	0.029	1.000	0.060
	1979-1980	2.413	0.143	0.608	0.180	0.681	0.068	1.000	0.142
	1981-1984	2.413	0.657	0.608	0.503	0.681	0.251	1.000	0.466
	1985+	3.184	0.551	0.345	0.589	0.601	0.479	1.000	0.551
NOx	Pre-1970	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1970-1973	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0
	1974-1978	1.262	0.022	0.770	0.004	1.242	0.027	1.000	0.014
	1979-1980	1.393	0.050	0.754	0.052	1.172	0.079	1.000	0.059
	1981-1984	1.393	0.056	0.754	0.056	1.172	0.085	1.000	0.064
	1985+	1.801	0.169	0.653	0.141	1.059	0.296	1.000	0.189

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.3.8A

AIR CONDITIONING CORRECTION FACTORS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* ACCF= U*V*(A + B*(T-75) -1) + 1

Model Years	HC		CO		NOx	
	A	B	A	B	A	B
Pre-1979	0.1023E+01	0.3344E-02	0.1202E+01	0.1808E-02	0.1299E+01	0.5643E-04
1979+	0.1000E+01	0.3512E-02	0.1130E+01	0.1528E-02	0.1221E+01	0.4262E-03

*WHERE:

ACCF = Air Conditioning Correction Factor
V = Fraction of vehicles which are equipped with AC given in Table 1.3.8B
U = Fraction of vehicles with AC that are using it = (DI-DILO)/(DIHI-DI), 0<=U<=1
DI = Discomfort index = (DB+WB)*.4+15
DILO = The highest discomfort index where no AC is used
DIHI = The lowest discomfort index where all vehicles with AC use it
DB = Dry bulb temperature (Fahrenheit)
WB = Wet bulb temperature (Fahrenheit)
T = Ambient temperature (Fahrenheit)

TABLE 1.3.8B

ESTIMATED FRACTION OF
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II
EQUIPPED WITH AIR CONDITIONING

Model Years	Fraction Equipped With Air Conditioning
Pre-1977	0.32
1977	0.52
1978+	0.39

DATE: MARCH 31, 1981

TABLE 1.3.9

EXTRA LOAD CORRECTION FACTORS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* XLCF = (XLC-1)*U + 1

Model Years	Coefficients (XLC) HC	CO	NOx
Pre-1970	1.0786	1.2765	0.9535
1970-1973	1.0495	1.1384	1.0313
1974-1978	1.0556	1.1347	1.0753
1979+	1.0455	1.3058	1.0719

* WHERE:
XLCF = Extra load correction factor
U = Fraction of VMT with an extra load
XLC = Correction factor coefficient

TABLE 1.3.10

TRAILER TOWING CORRECTION FACTORS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* TTCF = (TTC-1)*U + 1

Model Years	Coefficients (TTC) HC	CO	NOx
Pre-1970	1.2614	1.9327	1.1184
1970-1973	1.2762	1.8940	1.1384
1974-1978	1.7288	2.1414	1.2170
1979+	1.5909	3.9722	1.3875

* WHERE:
TTCF = Trailer towing correction factor
U = Fraction of VMT towing a trailer
TTC = Correction factor coefficient

DATE: MARCH 31, 1981

TABLE 1.4.1A

EXHAUST EMISSION RATES FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1970	18.26	0.35	20.01
	1970-1973	11.09	0.47	13.44
	1974-1978	11.09	0.32	12.69
	1979-1983	4.88	0.14	5.58
	1984	1.62	0.39	3.57
	1985+	1.16	0.31	2.71
CO	Pre-1970	227.63	5.46	254.93
	1970-1973	190.20	8.75	233.95
	1974-1978	190.20	8.37	232.05
	1979-1983	144.67	6.37	176.52
	1984	15.82	3.48	33.22
	1985+	7.75	4.09	28.20
NOx	Pre-1970	8.88	0.0	8.88
	1970-1973	11.40	0.0	11.40
	1974-1978	9.45	0.09	9.90
	1979-1983	9.45	0.09	9.90
	1984	11.33	0.63	14.48
	1985+	1.88	0.29	3.33

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.3, for the emission standards.

DATE: MARCH 31, 1981

TABLE 1.4.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1968	12.70	6.88	31.90	36.70	5.70	8.95
1968-1983	12.70	6.88	31.90	36.70	0.0	3.25
1984+	0.86	6.88	1.47	36.70	0.0	0.20

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 1.4.2A

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	25.0	1952	25.0	1953	25.0	1954	25.0	1955	25.0	1956	25.0	1957	25.0	1958	25.0	1959	25.0	1960	25.0	1961	25.0	1962	25.0
1952	24.8	1953	24.8	1954	24.8	1955	24.8	1956	24.8	1957	24.8	1958	24.8	1959	24.8	1960	24.8	1961	24.8	1962	24.8	1963	24.8
1953	24.6	1954	24.6	1955	24.6	1956	24.6	1957	24.6	1958	24.6	1959	24.6	1960	24.6	1961	24.6	1962	24.6	1963	24.6	1964	24.6
1954	24.4	1955	24.4	1956	24.4	1957	24.4	1958	24.4	1959	24.4	1960	24.4	1961	24.4	1962	24.4	1963	24.4	1964	24.4	1965	24.4
1955	24.2	1956	24.2	1957	24.2	1958	24.2	1959	24.2	1960	24.2	1961	24.2	1962	24.2	1963	24.2	1964	24.2	1965	24.2	1966	24.2
1956	24.0	1957	24.0	1958	24.0	1959	24.0	1960	24.0	1961	24.0	1962	24.0	1963	24.0	1964	24.0	1965	24.0	1966	24.0	1967	24.0
1957	23.8	1958	23.8	1959	23.8	1960	23.8	1961	23.8	1962	23.8	1963	23.8	1964	23.8	1965	23.8	1966	23.8	1967	23.8	1968	23.8
1958	23.5	1959	23.5	1960	23.5	1961	23.5	1962	23.5	1963	23.5	1964	23.5	1965	23.5	1966	23.5	1967	23.5	1968	23.5	1969	23.5
1959	23.3	1960	23.3	1961	23.3	1962	23.3	1963	23.3	1964	23.3	1965	23.3	1966	23.3	1967	23.3	1968	23.3	1969	23.3	1970	17.8
1960	23.0	1961	23.0	1962	23.0	1963	23.0	1964	23.0	1965	23.0	1966	23.0	1967	23.0	1968	23.0	1969	23.0	1970	17.4	1971	17.4
1961	22.7	1962	22.7	1963	22.7	1964	22.7	1965	22.7	1966	22.7	1967	22.7	1968	22.7	1969	22.7	1970	17.0	1971	17.0	1972	17.0
1962	22.3	1963	22.3	1964	22.3	1965	22.3	1966	22.3	1967	22.3	1968	22.3	1969	22.3	1970	16.5	1971	16.5	1972	16.5	1973	16.5
1963	21.9	1964	21.9	1965	21.9	1966	21.9	1967	21.9	1968	21.9	1969	21.9	1970	16.0	1971	16.0	1972	16.0	1973	16.0	1974	14.4
1964	21.5	1965	21.5	1966	21.5	1967	21.5	1968	21.5	1969	21.5	1970	15.5	1971	15.5	1972	15.5	1973	15.5	1974	14.1	1975	14.1
1965	21.0	1966	21.0	1967	21.0	1968	21.0	1969	21.0	1970	14.8	1971	14.8	1972	14.8	1973	14.8	1974	13.6	1975	13.6	1976	13.6
1966	20.5	1967	20.5	1968	20.5	1969	20.5	1970	14.1	1971	14.1	1972	14.1	1973	14.1	1974	13.2	1975	13.2	1976	13.2	1977	13.2
1967	20.0	1968	20.0	1969	20.0	1970	13.4	1971	13.4	1972	13.4	1973	13.4	1974	12.6	1975	12.6	1976	12.6	1977	12.6	1978	12.6
1968	19.3	1969	19.3	1970	12.5	1971	12.5	1972	12.5	1973	12.5	1974	12.1	1975	12.1	1976	12.1	1977	12.1	1978	12.1	1979	5.3
1969	18.6	1970	11.6	1971	11.6	1972	11.6	1973	11.6	1974	11.4	1975	11.4	1976	11.4	1977	11.4	1978	11.4	1979	5.0	1980	5.0
1970	11.1	1971	11.1	1972	11.1	1973	11.1	1974	11.1	1975	11.1	1976	11.1	1977	11.1	1978	11.1	1979	4.9	1980	4.9	1981	4.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	25.0	1964	25.0	1965	25.0	1966	25.0	1967	25.0	1968	25.0	1969	25.0	1970	20.1	1971	20.1	1972	20.1	1973	20.1	1974	17.2
1964	24.8	1965	24.8	1966	24.8	1967	24.8	1968	24.8	1969	24.8	1970	19.8	1971	19.8	1972	19.8	1973	19.8	1974	17.1	1975	17.1
1965	24.6	1966	24.6	1967	24.6	1968	24.6	1969	24.6	1970	19.6	1971	19.6	1972	19.6	1973	19.6	1974	16.9	1975	16.9	1976	16.9
1966	24.4	1967	24.4	1968	24.4	1969	24.4	1970	19.4	1971	19.4	1972	19.4	1973	19.4	1974	16.7	1975	16.7	1976	16.7	1977	16.7
1967	24.2	1968	24.2	1969	24.2	1970	19.1	1971	19.1	1972	19.1	1973	19.1	1974	16.5	1975	16.5	1976	16.5	1977	16.5	1978	16.5
1968	24.0	1969	24.0	1970	18.8	1971	18.8	1972	18.8	1973	18.8	1974	16.3	1975	16.3	1976	16.3	1977	16.3	1978	16.3	1979	7.2
1969	23.8	1970	18.5	1971	18.5	1972	18.5	1973	18.5	1974	16.1	1975	16.1	1976	16.1	1977	16.1	1978	16.1	1979	7.1	1980	7.1
1970	18.2	1971	18.2	1972	18.2	1973	18.2	1974	15.9	1975	15.9	1976	15.9	1977	15.9	1978	15.9	1979	7.0	1980	7.0	1981	7.0
1971	17.8	1972	17.8	1973	17.8	1974	15.7	1975	15.7	1976	15.7	1977	15.7	1978	15.7	1979	6.9	1980	6.9	1981	6.9	1982	6.9
1972	17.4	1973	17.4	1974	15.4	1975	15.4	1976	15.4	1977	15.4	1978	15.4	1979	6.8	1980	6.8	1981	6.8	1982	6.8	1983	6.8
1973	17.0	1974	15.1	1975	15.1	1976	15.1	1977	15.1	1978	15.1	1979	6.6	1980	6.6	1981	6.6	1982	6.6	1983	6.6	1984	6.5
1974	14.8	1975	14.8	1976	14.8	1977	14.8	1978	14.8	1979	6.5	1980	6.5	1981	6.5	1982	6.5	1983	6.5	1984	6.1	1985	4.7
1975	14.4	1976	14.4	1977	14.4	1978	14.4	1979	6.3	1980	6.3	1981	6.3	1982	6.3	1983	6.3	1984	5.7	1985	4.4	1986	4.4
1976	14.1	1977	14.1	1978	14.1	1979	6.2	1980	6.2	1981	6.2	1982	6.2	1983	6.2	1984	5.2	1985	4.0	1986	4.0	1987	4.0
1977	13.6	1978	13.6	1979	6.0	1980	6.0	1981	6.0	1982	6.0	1983	6.0	1984	4.7	1985	3.6	1986	3.6	1987	3.6	1988	3.6
1978	13.2	1979	5.8	1980	5.8	1981	5.8	1982	5.8	1983	5.8	1984	4.1	1985	3.2	1986	3.2	1987	3.2	1988	3.2	1989	3.2
1979	5.6	1980	5.6	1981	5.6	1982	5.6	1983	5.6	1984	3.5	1985	2.7	1986	2.7	1987	2.7	1988	2.7	1989	2.7	1990	2.7
1980	5.3	1981	5.3	1982	5.3	1983	5.3	1984	2.8	1985	2.1	1986	2.1	1987	2.1	1988	2.1	1989	2.1	1990	2.1	1991	2.1
1981	5.0	1982	5.0	1983	5.0	1984	2.0	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5	1990	1.5	1991	1.5	1992	1.5
1982	4.9	1983	4.9	1984	1.6	1985	1.2	1986	1.2	1987	1.2	1988	1.2	1989	1.2	1990	1.2	1991	1.2	1992	1.2	1993	1.2

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 1.4.4.

DATE: MARCH 31, 1981

TABLE 1.4.2B

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	332.1	1952	332.1	1953	332.1	1954	332.1	1955	332.1	1956	332.1	1957	332.1	1958	332.1	1959	332.1	1960	332.1	1961	332.1	1962	332.1
1952	329.3	1953	329.3	1954	329.3	1955	329.3	1956	329.3	1957	329.3	1958	329.3	1959	329.3	1960	329.3	1961	329.3	1962	329.3	1963	329.3
1953	326.6	1954	326.6	1955	326.6	1956	326.6	1957	326.6	1958	326.6	1959	326.6	1960	326.6	1961	326.6	1962	326.6	1963	326.6	1964	326.6
1954	323.6	1955	323.6	1956	323.6	1957	323.6	1958	323.6	1959	323.6	1960	323.6	1961	323.6	1962	323.6	1963	323.6	1964	323.6	1965	323.6
1955	320.5	1956	320.5	1957	320.5	1958	320.5	1959	320.5	1960	320.5	1961	320.5	1962	320.5	1963	320.5	1964	320.5	1965	320.5	1966	320.5
1956	317.2	1957	317.2	1958	317.2	1959	317.2	1960	317.2	1961	317.2	1962	317.2	1963	317.2	1964	317.2	1965	317.2	1966	317.2	1967	317.2
1957	313.7	1958	313.7	1959	313.7	1960	313.7	1961	313.7	1962	313.7	1963	313.7	1964	313.7	1965	313.7	1966	313.7	1967	313.7	1968	313.7
1958	309.8	1959	309.8	1960	309.8	1961	309.8	1962	309.8	1963	309.8	1964	309.8	1965	309.8	1966	309.8	1967	309.8	1968	309.8	1969	309.8
1959	305.7	1960	305.7	1961	305.7	1962	305.7	1963	305.7	1964	305.7	1965	305.7	1966	305.7	1967	305.7	1968	305.7	1969	305.7	1970	315.2
1960	301.1	1961	301.1	1962	301.1	1963	301.1	1964	301.1	1965	301.1	1966	301.1	1967	301.1	1968	301.1	1969	301.1	1970	308.0	1971	308.0
1961	296.2	1962	296.2	1963	296.2	1964	296.2	1965	296.2	1966	296.2	1967	296.2	1968	296.2	1969	296.2	1970	300.1	1971	300.1	1972	300.1
1962	290.8	1963	290.8	1964	290.8	1965	290.8	1966	290.8	1967	290.8	1968	290.8	1969	290.8	1970	291.5	1971	291.5	1972	291.5	1973	291.5
1963	284.9	1964	284.9	1965	284.9	1966	284.9	1967	284.9	1968	284.9	1969	284.9	1970	282.0	1971	282.0	1972	282.0	1973	282.0	1974	278.0
1964	278.4	1965	278.4	1966	278.4	1967	278.4	1968	278.4	1969	278.4	1970	271.6	1971	271.6	1972	271.6	1973	271.6	1974	268.0	1975	268.0
1965	271.1	1966	271.1	1967	271.1	1968	271.1	1969	271.1	1970	259.9	1971	259.9	1972	259.9	1973	259.9	1974	256.9	1975	256.9	1976	256.9
1966	263.0	1967	263.0	1968	263.0	1969	263.0	1970	246.9	1971	246.9	1972	246.9	1973	246.9	1974	244.5	1975	244.5	1976	244.5	1977	244.5
1967	254.1	1968	254.1	1969	254.1	1970	232.6	1971	232.6	1972	232.6	1973	232.6	1974	230.8	1975	230.8	1976	230.8	1977	230.8	1978	230.8
1968	244.3	1969	244.3	1970	216.8	1971	216.8	1972	216.8	1973	216.8	1974	215.7	1975	215.7	1976	215.7	1977	215.7	1978	215.7	1979	164.1
1969	233.4	1970	199.4	1971	199.4	1972	199.4	1973	199.4	1974	199.0	1975	199.0	1976	199.0	1977	199.0	1978	199.0	1979	151.4	1980	151.4
1970	190.2	1971	190.2	1972	190.2	1973	190.2	1974	190.2	1975	190.2	1976	190.2	1977	190.2	1978	190.2	1979	144.7	1980	144.7	1981	144.7

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	332.1	1964	332.1	1965	332.1	1966	332.1	1967	332.1	1968	332.1	1969	332.1	1970	357.6	1971	357.6	1972	357.6	1973	357.6	1974	350.3
1964	329.3	1965	329.3	1966	329.3	1967	329.3	1968	329.3	1969	329.3	1970	353.2	1971	353.2	1972	353.2	1973	353.2	1974	346.1	1975	346.1
1965	326.6	1966	326.6	1967	326.6	1968	326.6	1969	326.6	1970	348.7	1971	348.7	1972	348.7	1973	348.7	1974	341.9	1975	341.9	1976	341.9
1966	323.6	1967	323.6	1968	323.6	1969	323.6	1970	344.1	1971	344.1	1972	344.1	1973	344.1	1974	337.4	1975	337.4	1976	337.4	1977	337.4
1967	320.5	1968	320.5	1969	320.5	1970	339.1	1971	339.1	1972	339.1	1973	339.1	1974	332.6	1975	332.6	1976	332.6	1977	332.6	1978	332.6
1968	317.2	1969	317.2	1970	333.7	1971	333.7	1972	333.7	1973	333.7	1974	327.5	1975	327.5	1976	327.5	1977	327.5	1978	327.5	1979	249.2
1969	313.7	1970	328.1	1971	328.1	1972	328.1	1973	328.1	1974	322.1	1975	322.1	1976	322.1	1977	322.1	1978	322.1	1979	245.0	1980	245.0
1970	321.9	1971	321.9	1972	321.9	1973	321.9	1974	316.2	1975	316.2	1976	316.2	1977	316.2	1978	316.2	1979	240.6	1980	240.6	1981	240.6
1971	315.2	1972	315.2	1973	315.2	1974	309.8	1975	309.8	1976	309.8	1977	309.8	1978	309.8	1979	235.7	1980	235.7	1981	235.7	1982	235.7
1972	308.0	1973	308.0	1974	302.9	1975	302.9	1976	302.9	1977	302.9	1978	302.9	1979	230.4	1980	230.4	1981	230.4	1982	230.4	1983	230.4
1973	300.1	1974	295.3	1975	295.3	1976	295.3	1977	295.3	1978	295.3	1979	224.7	1980	224.7	1981	224.7	1982	224.7	1983	224.7	1984	59.5
1974	287.1	1975	287.1	1976	287.1	1977	287.1	1978	287.1	1979	218.4	1980	218.4	1981	218.4	1982	218.4	1983	218.4	1984	56.1	1985	55.1
1975	278.0	1976	278.0	1977	278.0	1978	278.0	1979	211.5	1980	211.5	1981	211.5	1982	211.5	1983	211.5	1984	52.3	1985	50.7	1986	50.7
1976	268.0	1977	268.0	1978	268.0	1979	203.9	1980	203.9	1981	203.9	1982	203.9	1983	203.9	1984	48.2	1985	45.8	1986	45.8	1987	45.8
1977	256.9	1978	256.9	1979	195.4	1980	195.4	1981	195.4	1982	195.4	1983	195.4	1984	43.5	1985	40.3	1986	40.3	1987	40.3	1988	40.3
1978	244.5	1979	186.0	1980	186.0	1981	186.0	1982	186.0	1983	186.0	1984	38.4	1985	34.3	1986	34.3	1987	34.3	1988	34.3	1989	34.3
1979	175.6	1980	175.6	1981	175.6	1982	175.6	1983	175.6	1984	32.7	1985	27.6	1986	27.6	1987	27.6	1988	27.6	1989	27.6	1990	27.6
1980	164.1	1981	164.1	1982	164.1	1983	164.1	1984	26.4	1985	20.2	1986	20.2	1987	20.2	1988	20.2	1989	20.2	1990	20.2	1991	20.2
1981	151.4	1982	151.4	1983	151.4	1984	19.5	1985	12.0	1986	12.0	1987	12.0	1988	12.0	1989	12.0	1990	12.0	1991	12.0	1992	12.0
1982	144.7	1983	144.7	1984	15.8	1985	7.8	1986	7.8	1987	7.8	1988	7.8	1989	7.8	1990	7.8	1991	7.8	1992	7.8	1993	7.8

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 1.4.4.

DATE: MARCH 31, 1981

TABLE 1.4.2C

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	8.9	1952	8.9	1953	8.9	1954	8.9	1955	8.9	1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9
1952	8.9	1953	8.9	1954	8.9	1955	8.9	1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9
1953	8.9	1954	8.9	1955	8.9	1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9
1954	8.9	1955	8.9	1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9
1955	8.9	1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9
1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9
1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9
1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	8.9
1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4
1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4
1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4
1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4
1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	10.4
1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	10.3	1975	10.3
1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	10.2	1975	10.2	1976	10.2
1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	10.0	1975	10.0	1976	10.0	1977	10.0
1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	9.9	1975	9.9	1976	9.9	1977	9.9	1978	9.9
1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	9.7	1975	9.7	1976	9.7	1977	9.7	1978	9.7	1979	9.7
1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	9.5	1975	9.5	1976	9.5	1977	9.5	1978	9.5	1979	9.5	1980	9.5
1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	9.4	1975	9.4	1976	9.4	1977	9.4	1978	9.4	1979	9.4	1980	9.4	1981	9.4

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	11.2
1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	11.1	1975	11.1
1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	11.1	1975	11.1	1976	11.1
1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	11.0	1975	11.0	1976	11.0	1977	11.0
1967	8.9	1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	11.0	1975	11.0	1976	11.0	1977	11.0	1978	11.0
1968	8.9	1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	10.9	1975	10.9	1976	10.9	1977	10.9	1978	10.9	1979	10.9
1969	8.9	1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	10.9	1975	10.9	1976	10.9	1977	10.9	1978	10.9	1979	10.9	1980	10.9
1970	11.4	1971	11.4	1972	11.4	1973	11.4	1974	10.8	1975	10.8	1976	10.8	1977	10.8	1978	10.8	1979	10.8	1980	10.8	1981	10.8
1971	11.4	1972	11.4	1973	11.4	1974	10.7	1975	10.7	1976	10.7	1977	10.7	1978	10.7	1979	10.7	1980	10.7	1981	10.7	1982	10.7
1972	11.4	1973	11.4	1974	10.7	1975	10.7	1976	10.7	1977	10.7	1978	10.7	1979	10.7	1980	10.7	1981	10.7	1982	10.7	1983	10.7
1973	11.4	1974	10.6	1975	10.6	1976	10.6	1977	10.6	1978	10.6	1979	10.6	1980	10.6	1981	10.6	1982	10.6	1983	10.6	1984	19.2
1974	10.5	1975	10.5	1976	10.5	1977	10.5	1978	10.5	1979	10.5	1980	10.5	1981	10.5	1982	10.5	1983	10.5	1984	18.6	1985	5.2
1975	10.4	1976	10.4	1977	10.4	1978	10.4	1979	10.4	1980	10.4	1981	10.4	1982	10.4	1983	10.4	1984	17.9	1985	4.9	1986	4.9
1976	10.3	1977	10.3	1978	10.3	1979	10.3	1980	10.3	1981	10.3	1982	10.3	1983	10.3	1984	17.2	1985	4.6	1986	4.6	1987	4.6
1977	10.2	1978	10.2	1979	10.2	1980	10.2	1981	10.2	1982	10.2	1983	10.2	1984	16.3	1985	4.2	1986	4.2	1987	4.2	1988	4.2
1978	10.0	1979	10.0	1980	10.0	1981	10.0	1982	10.0	1983	10.0	1984	15.4	1985	3.8	1986	3.8	1987	3.8	1988	3.8	1989	3.8
1979	9.9	1980	9.9	1981	9.9	1982	9.9	1983	9.9	1984	14.4	1985	3.3	1986	3.3	1987	3.3	1988	3.3	1989	3.3	1990	3.3
1980	9.7	1981	9.7	1982	9.7	1983	9.7	1984	13.2	1985	2.8	1986	2.8	1987	2.8	1988	2.8	1989	2.8	1990	2.8	1991	2.8
1981	9.5	1982	9.5	1983	9.5	1984	12.0	1985	2.2	1986	2.2	1987	2.2	1988	2.2	1989	2.2	1990	2.2	1991	2.2	1992	2.2
1982	9.4	1983	9.4	1984	11.3	1985	1.9	1986	1.9	1987	1.9	1988	1.9	1989	1.9	1990	1.9	1991	1.9	1992	1.9	1993	1.9

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 1.4.4.

DATE: MARCH 31, 1981

TABLE 1.4.3

IDLE EMISSION RATES FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1970	2.29	0.04
	1970-1973	0.85	0.04
	1974-1978	0.85	0.02
	1979-1983	0.43	0.01
	1984	0.14	0.03
	1985+	0.10	0.03
CO	Pre-1970	22.18	0.53
	1970-1973	6.15	0.28
	1974-1978	6.15	0.27
	1979-1983	6.42	0.28
	1984	0.70	0.14
	1985+	0.34	0.18
NOx	Pre-1970	0.04	0.0
	1970-1973	0.05	0.0
	1974-1978	0.06	0.0
	1979-1983	0.06	0.0
	1984	0.07	0.0
	1985+	0.01	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.4.4

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.128	21000.	0.0	0.	0.
2	0.114	18900.	0.114	21000.	10500.
3	0.097	17200.	0.097	18900.	30450.
4	0.073	15500.	0.073	17200.	48500.
5	0.086	14100.	0.086	15500.	64850.
6	0.088	12600.	0.088	14100.	79650.
7	0.070	11300.	0.070	12600.	93000.
8	0.053	10300.	0.053	11300.	104950.
9	0.041	9400.	0.041	10300.	115750.
10	0.044	8600.	0.044	9400.	125600.
11	0.040	8000.	0.040	8600.	134600.
12	0.031	7300.	0.031	8000.	142900.
13	0.030	6700.	0.030	7300.	150550.
14	0.026	6300.	0.026	6700.	157549.
15	0.021	5900.	0.021	6300.	164049.
16	0.018	5500.	0.018	5900.	170149.
17	0.013	5200.	0.013	5500.	175849.
18	0.009	5000.	0.009	5200.	181199.
19	0.008	5000.	0.008	5000.	186299.
20+	0.010	5000.	0.010	5000.	191299.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 1.4.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) HDGV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) HDGV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.0	1.000	0.0	0.0	0.	0.0	0.0
1984	0.114	1.000	0.114	0.131	21000.	2741.7	0.202
1983	0.097	1.000	0.097	0.112	18900.	2110.1	0.156
1982	0.073	1.000	0.073	0.084	17200.	1449.1	0.107
1981	0.086	1.000	0.086	0.098	15500.	1524.4	0.113
1980	0.088	1.000	0.088	0.101	14100.	1425.5	0.105
1979	0.070	1.000	0.070	0.081	12600.	1018.2	0.075
1978	0.053	1.000	0.053	0.061	11300.	691.7	0.051
1977	0.041	1.000	0.041	0.047	10300.	487.6	0.036
1976	0.044	1.000	0.044	0.050	9400.	473.0	0.035
1975	0.040	1.000	0.040	0.045	8600.	390.4	0.029
1974	0.031	1.000	0.031	0.035	8000.	280.6	0.021
1973	0.030	1.000	0.030	0.034	7300.	250.2	0.018
1972	0.026	1.000	0.026	0.030	6700.	200.4	0.015
1971	0.021	1.000	0.021	0.024	6300.	148.8	0.011
1970	0.018	1.000	0.018	0.020	5900.	119.7	0.009
1969	0.013	1.000	0.013	0.015	5500.	81.3	0.006
1968	0.009	1.000	0.009	0.011	5200.	54.8	0.004
1967	0.008	1.000	0.008	0.009	5000.	47.0	0.003
1966-	0.010	1.000	0.010	0.011	5000.	55.6	0.004
		DAF:	0.872		TFNORM:	13550.2	

WHERE:
- A = January 1 registration mix from Table 1.4.4.
- B = Fleet sales fractions will always equal 1.000 for HDGVs.
- D = Sales weighted fleet mileage accumulation rate from Table 1.4.4, adjusted to January 1.
- D(1) = 0
- D(MYI) = Annual Miles(MYI-1) , MYI=2,...,20+

DATE: MARCH 31, 1981

TABLE 1.4.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

* $SCF(s) = EXP(A + B*s + C*s^2)$, HC & CO
$= A + B*s + C*s^2$, NOx

Pol	Model Years	Coefficients A	B	C
HC	Pre-1970	1.60800	-0.09700	0.00083
	1970-1973	1.60800	-0.09700	0.00083
	1974-1978	1.60800	-0.09700	0.00083
	1979-1983	1.60800	-0.09700	0.00083
	1984	1.60800	-0.09700	0.00083
	1985+	1.60800	-0.09700	0.00083
CO	Pre-1970	1.52000	-0.09800	0.00110
	1970-1973	1.52000	-0.09800	0.00110
	1974-1978	1.52000	-0.09800	0.00110
	1979-1983	1.52000	-0.09800	0.00110
	1984	1.52000	-0.09800	0.00110
	1985+	1.52000	-0.09800	0.00110
NOx	Pre-1970	0.82400	0.00880	0.0
	1970-1973	0.82400	0.00880	0.0
	1974-1978	0.82400	0.00880	0.0
	1979-1983	0.82400	0.00880	0.0
	1984	0.82400	0.00880	0.0
	1985+	0.82400	0.00880	0.0

* where s = average speed (mph)

DATE: MARCH 31, 1981

TABLE 1.4.7

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

* TCF = EXP(TC * (T - TT))

Pol	Model Years	TC Low	TC High
HC	Pre-1970	-0.58903E-02	0.13458E-02
	1970-1973	-0.73870E-02	0.52317E-02
	1974-1978	-0.49759E-02	0.54651E-02
	1979-1983	-0.28549E-02	0.10082E-01
	1984	-0.74107E-02	0.20546E-01
	1985+	-0.92859E-02	0.84842E-02
CO	Pre-1970	-0.20576E-02	0.81720E-02
	1970-1973	-0.45541E-02	0.20268E-01
	1974-1978	-0.42899E-02	0.24127E-01
	1979-1983	-0.13085E-02	0.22061E-01
	1984	-0.77117E-02	0.27019E-01
	1985+	-0.60195E-02	0.71457E-02
NOx	Pre-1970	-0.64315E-02	-0.83986E-02
	1970-1973	-0.55456E-02	-0.86880E-02
	1974-1978	-0.13969E-02	-0.18079E-01
	1979-1983	-0.46352E-03	-0.74889E-02
	1984	-0.57524E-02	-0.21593E-01
	1985+	-0.19733E-02	-0.29584E-01

* WHERE:
T = Ambient temperature (Fahrenheit)
TC = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

DATE: MARCH 31, 1981

TABLE 1.5.1

EXHAUST EMISSION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1975	1.31	0.08	1.71
	1975-1976	0.43	0.05	0.68
	1977	0.51	0.03	0.66
	1978	0.81	0.07	1.16
	1979	0.71	0.05	0.96
	1980+	0.39	0.03	0.54
CO	Pre-1975	2.71	0.13	3.36
	1975-1976	1.20	0.06	1.50
	1977	1.39	0.08	1.79
	1978	1.46	0.09	1.91
	1979	1.52	0.08	1.92
	1980+	1.27	0.05	1.52
NOx	Pre-1975	1.46	0.04	1.66
	1975-1976	1.77	0.03	1.92
	1977	1.33	0.07	1.68
	1978	1.62	0.05	1.87
	1979	1.46	0.06	1.76
	1980	1.49	0.06	1.79
	1981-1982	1.11	0.06	1.41
	1983+	0.75	0.05	1.00

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.1, for the emission standards.

DATE: MARCH 31, 1981

TABLE 1.5.2A

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	2.8	1952	2.8	1953	2.8	1954	2.8	1955	2.8	1956	2.8	1957	2.8	1958	2.8	1959	2.8	1960	2.8	1961	2.8	1962	2.8
1952	2.7	1953	2.7	1954	2.7	1955	2.7	1956	2.7	1957	2.7	1958	2.7	1959	2.7	1960	2.7	1961	2.7	1962	2.7	1963	2.7
1953	2.7	1954	2.7	1955	2.7	1956	2.7	1957	2.7	1958	2.7	1959	2.7	1960	2.7	1961	2.7	1962	2.7	1963	2.7	1964	2.7
1954	2.6	1955	2.6	1956	2.6	1957	2.6	1958	2.6	1959	2.6	1960	2.6	1961	2.6	1962	2.6	1963	2.6	1964	2.6	1965	2.6
1955	2.6	1956	2.6	1957	2.6	1958	2.6	1959	2.6	1960	2.6	1961	2.6	1962	2.6	1963	2.6	1964	2.6	1965	2.6	1966	2.6
1956	2.5	1957	2.5	1958	2.5	1959	2.5	1960	2.5	1961	2.5	1962	2.5	1963	2.5	1964	2.5	1965	2.5	1966	2.5	1967	2.5
1957	2.5	1958	2.5	1959	2.5	1960	2.5	1961	2.5	1962	2.5	1963	2.5	1964	2.5	1965	2.5	1966	2.5	1967	2.5	1968	2.5
1958	2.4	1959	2.4	1960	2.4	1961	2.4	1962	2.4	1963	2.4	1964	2.4	1965	2.4	1966	2.4	1967	2.4	1968	2.4	1969	2.4
1959	2.3	1960	2.3	1961	2.3	1962	2.3	1963	2.3	1964	2.3	1965	2.3	1966	2.3	1967	2.3	1968	2.3	1969	2.3	1970	2.3
1960	2.3	1961	2.3	1962	2.3	1963	2.3	1964	2.3	1965	2.3	1966	2.3	1967	2.3	1968	2.3	1969	2.3	1970	2.3	1971	2.3
1961	2.2	1962	2.2	1963	2.2	1964	2.2	1965	2.2	1966	2.2	1967	2.2	1968	2.2	1969	2.2	1970	2.2	1971	2.2	1972	2.2
1962	2.1	1963	2.1	1964	2.1	1965	2.1	1966	2.1	1967	2.1	1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1
1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.0	1969	2.0	1970	2.0	1971	2.0	1972	2.0	1973	2.0	1974	2.0
1964	1.9	1965	1.9	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	1.9	1971	1.9	1972	1.9	1973	1.9	1974	1.9	1975	0.8
1965	1.8	1966	1.8	1967	1.8	1968	1.8	1969	1.8	1970	1.8	1971	1.8	1972	1.8	1973	1.8	1974	1.8	1975	0.7	1976	0.7
1966	1.7	1967	1.7	1968	1.7	1969	1.7	1970	1.7	1971	1.7	1972	1.7	1973	1.7	1974	1.7	1975	0.7	1976	0.7	1977	0.7
1967	1.6	1968	1.6	1969	1.6	1970	1.6	1971	1.6	1972	1.6	1973	1.6	1974	1.6	1975	0.6	1976	0.6	1977	0.6	1978	1.1
1968	1.5	1969	1.5	1970	1.5	1971	1.5	1972	1.5	1973	1.5	1974	1.5	1975	0.6	1976	0.6	1977	0.6	1978	1.0	1979	0.8
1969	1.4	1970	1.4	1971	1.4	1972	1.4	1973	1.4	1974	1.4	1975	0.5	1976	0.5	1977	0.5	1978	0.9	1979	0.8	1980	0.4
1970	1.3	1971	1.3	1972	1.3	1973	1.3	1974	1.3	1975	0.4	1976	0.4	1977	0.5	1978	0.8	1979	0.7	1980	0.4	1981	0.4

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	2.8	1964	2.8	1965	2.8	1966	2,8	1967	2.8	1968	2.8	1969	2.8	1970	2.8	1971	2.8	1972	2.8	1973	2.8	1974	2.8
1964	2.7	1965	2.7	1966	2.7	1967	2.7	1968	2.7	1969	2.7	1970	2.7	1971	2.7	1972	2.7	1973	2.7	1974	2.7	1975	1.3
1965	2.7	1966	2.7	1967	2.7	1968	2.7	1969	2.7	1970	2.7	1971	2.7	1972	2.7	1973	2.7	1974	2.7	1975	1.3	1976	1.3
1966	2.6	1967	2.6	1968	2.6	1969	2.6	1970	2.6	1971	2.6	1972	2.6	1973	2.6	1974	2.6	1975	1.3	1976	1.3	1977	1.0
1967	2.6	1968	2.6	1969	2.6	1970	2.6	1971	2.6	1972	2.6	1973	2.6	1974	2.6	1975	1.2	1976	1.2	1977	1.0	1978	1.9
1968	2.5	1969	2.5	1970	2.5	1971	2.5	1972	2.5	1973	2.5	1974	2.5	1975	1.2	1976	1.2	1977	1.0	1978	1.9	1979	1.5
1969	2.5	1970	2.5	1971	2.5	1972	2.5	1973	2.5	1974	2.5	1975	1.1	1976	1.1	1977	0.9	1978	1.8	1979	1.4	1980	0.8
1970	2.4	1971	2.4	1972	2.4	1973	2.4	1974	2.4	1975	1.1	1976	1.1	1977	0.9	1978	1.8	1979	1.4	1980	0.8	1981	0.8
1971	2.3	1972	2.3	1973	2.3	1974	2.3	1975	1.1	1976	1.1	1977	0.9	1978	1.7	1979	1.3	1980	0.8	1981	0.8	1982	0.8
1972	2.3	1973	2.3	1974	2.3	1975	1.0	1976	1.0	1977	0.9	1978	1.6	1979	1.3	1980	0.7	1981	0.7	1982	0.7	1983	0.7
1973	2.2	1974	2.2	1975	1.0	1976	1.0	1977	0.8	1978	1.6	1979	1.3	1980	0.7	1981	0.7	1982	0.7	1983	0.7	1984	0.7
1974	2.1	1975	0.9	1976	0.9	1977	0.8	1978	1.5	1979	1.2	1980	0.7	1981	0.7	1982	0.7	1983	0.7	1984	0.7	1985	0.7
1975	0.9	1976	0.9	1977	0.8	1978	1.4	1979	1.1	1980	0.7	1981	0.7	1982	0.7	1983	0.7	1984	0.7	1985	0.7	1986	0.7
1976	0.8	1977	0.7	1978	1.3	1979	1.1	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6
1977	0.7	1978	1.3	1979	1.0	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6
1978	1.2	1979	1.0	1980	0.5	1981	0.5	1982	0.5	1983	0.5	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5
1979	0.9	1980	0.5	1981	0.5	1982	0.5	1983	0.5	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5
1980	0.5	1981	0.5	1982	0.5	1983	0.5	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5
1981	0.4	1982	0.4	1983	0.4	1984	0.4	1985	0.4	1986	0.4	1987	0.4	1988	0.4	1989	0.4	1990	0.4	1991	0.4	1992	0.4
1982	0.4	1983	0.4	1984	0.4	1985	0.4	1986	0.4	1987	0.4	1988	0.4	1989	0.4	1990	0.4	1991	0.4	1992	0.4	1993	0.4

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.5.4A.

DATE: MARCH 31, 1981

TABLE 1.5.2B

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	5.1	1952	5.1	1953	5.1	1954	5.1	1955	5.1	1956	5.1	1957	5.1	1958	5.1	1959	5.1	1960	5.1	1961	5.1	1962	5.1
1952	5.0	1953	5.0	1954	5.0	1955	5.0	1956	5.0	1957	5.0	1958	5.0	1959	5.0	1960	5.0	1961	5.0	1962	5.0	1963	5.0
1953	4.9	1954	4.9	1955	4.9	1956	4.9	1957	4.9	1958	4.9	1959	4.9	1960	4.9	1961	4.9	1962	4.9	1963	4.9	1964	4.9
1954	4.9	1955	4.9	1956	4.9	1957	4.9	1958	4.9	1959	4.9	1960	4.9	1961	4.9	1962	4.9	1963	4.9	1964	4.9	1965	4.9
1955	4.8	1956	4.8	1957	4.8	1958	4.8	1959	4.8	1960	4.8	1961	4.8	1962	4.8	1963	4.8	1964	4.8	1965	4.8	1966	4.8
1956	4.7	1957	4.7	1958	4.7	1959	4.7	1960	4.7	1961	4.7	1962	4.7	1963	4.7	1964	4.7	1965	4.7	1966	4.7	1967	4.7
1957	4.6	1958	4.6	1959	4.6	1960	4.6	1961	4.6	1962	4.6	1963	4.6	1964	4.6	1965	4.6	1966	4.6	1967	4.6	1968	4.6
1958	4.5	1959	4.5	1960	4.5	1961	4.5	1962	4.5	1963	4.5	1964	4.5	1965	4.5	1966	4.5	1967	4.5	1968	4.5	1969	4.5
1959	4.4	1960	4.4	1961	4.4	1962	4.4	1963	4.4	1964	4.4	1965	4.4	1966	4.4	1967	4.4	1968	4.4	1969	4.4	1970	4.4
1960	4.2	1961	4.2	1962	4.2	1963	4.2	1964	4.2	1965	4.2	1966	4.2	1967	4.2	1968	4.2	1969	4.2	1970	4.2	1971	4.2
1961	4.1	1962	4.1	1963	4.1	1964	4.1	1965	4.1	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	4.1	1972	4.1
1962	4.0	1963	4.0	1964	4.0	1965	4.0	1966	4.0	1967	4.0	1968	4.0	1969	4.0	1970	4.0	1971	4.0	1972	4.0	1973	4.0
1963	3.8	1964	3.8	1965	3.8	1966	3.8	1967	3.8	1968	3.8	1969	3.8	1970	3.8	1971	3.8	1972	3.8	1973	3.8	1974	3.8
1964	3.7	1965	3.7	1966	3.7	1967	3.7	1968	3.7	1969	3.7	1970	3.7	1971	3.7	1972	3.7	1973	3.7	1974	3.7	1975	1.7
1965	3.5	1966	3.5	1967	3.5	1968	3.5	1969	3.5	1970	3.5	1971	3.5	1972	3.5	1973	3.5	1974	3.5	1975	1.6	1976	1.6
1966	3.4	1967	3.4	1968	3.4	1969	3.4	1970	3.4	1971	3.4	1972	3.4	1973	3.4	1974	3.4	1975	1.5	1976	1.5	1977	1.8
1967	3.2	1968	3.2	1969	3.2	1970	3.2	1971	3.2	1972	3.2	1973	3.2	1974	3.2	1975	1.4	1976	1.4	1977	1.7	1978	1.8
1968	3.0	1969	3.0	1970	3.0	1971	3.0	1972	3.0	1973	3.0	1974	3.0	1975	1.3	1976	1.3	1977	1.6	1978	1.7	1979	1.7
1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.9	1974	2.9	1975	1.3	1976	1.3	1977	1.5	1978	1.6	1979	1.6	1980	1.3
1970	2.7	1971	2.7	1972	2.7	1973	2.7	1974	2.7	1975	1.2	1976	1.2	1977	1.4	1978	1.5	1979	1.5	1980	1.3	1981	1.3

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	5.1	1971	5.1	1972	5.1	1973	5.1	1974	5.1
1964	5.0	1965	5.0	1966	5.0	1967	5.0	1968	5.0	1969	5.0	1970	5.0	1971	5.0	1972	5.0	1973	5.0	1974	5.0	1975	2.3
1965	4.9	1966	4.9	1967	4.9	1968	4.9	1969	4.9	1970	4.9	1971	4.9	1972	4.9	1973	4.9	1974	4.9	1975	2.2	1976	2.2
1966	4.9	1967	4.9	1968	4.9	1969	4.9	1970	4.9	1971	4.9	1972	4.9	1973	4.9	1974	4.9	1975	2.2	1976	2.2	1977	2.7
1967	4.8	1968	4.8	1969	4.8	1970	4.8	1971	4.8	1972	4.8	1973	4.8	1974	4.8	1975	2.2	1976	2.2	1977	2.7	1978	2.9
1968	4.7	1969	4.7	1970	4.7	1971	4.7	1972	4.7	1973	4.7	1974	4.7	1975	2.1	1976	2.1	1977	2.6	1978	2.8	1979	2.7
1969	4.6	1970	4.6	1971	4.6	1972	4.6	1973	4.6	1974	4.6	1975	2.1	1976	2.1	1977	2.5	1978	2.8	1979	2.7	1980	2.0
1970	4.5	1971	4.5	1972	4.5	1973	4.5	1974	4.5	1975	2.0	1976	2.0	1977	2.5	1978	2.7	1979	2.6	1980	1.9	1981	1.9
1971	4.4	1972	4.4	1973	4.4	1974	4.4	1975	2.0	1976	2.0	1977	2.4	1978	2.6	1979	2.5	1980	1.9	1981	1.9	1982	1.9
1972	4.2	1973	4.2	1974	4.2	1975	1.9	1976	1.9	1977	2.3	1978	2.5	1979	2.5	1980	1.9	1981	1.9	1982	1.9	1983	1.9
1973	4.1	1974	4.1	1975	1.8	1976	1.8	1977	2.3	1978	2.4	1979	2.4	1980	1.8	1981	1.8	1982	1.8	1983	1.8	1984	1.8
1974	4.0	1975	1.8	1976	1.8	1977	2.2	1978	2.3	1979	2.3	1980	1.8	1981	1.8	1982	1.8	1983	1.8	1984	1.8	1985	1.8
1975	1.7	1976	1.7	1977	2.1	1978	2.2	1979	2.2	1980	1.7	1981	1.7	1982	1.7	1983	1.7	1984	1.7	1985	1.7	1986	1.7
1976	1.7	1977	2.0	1978	2.1	1979	2.1	1980	1.6	1981	1.6	1982	1.6	1983	1.6	1984	1.6	1985	1.6	1986	1.6	1987	1.6
1977	1.9	1978	2.0	1979	2.0	1980	1.6	1981	1.6	1982	1.6	1983	1.6	1984	1.6	1985	1.6	1986	1.6	1987	1.6	1988	1.6
1978	1.9	1979	1.9	1980	1.5	1981	1.5	1982	1.5	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5
1979	1.8	1980	1.5	1981	1.5	1982	1.5	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5	1990	1.5
1980	1.4	1981	1.4	1982	1.4	1983	1.4	1984	1.4	1985	1.4	1986	1.4	1987	1.4	1988	1.4	1989	1.4	1990	1.4	1991	1.4
1981	1.3	1982	1.3	1983	1.3	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3	1991	1.3	1992	1.3
1982	1.3	1983	1.3	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3	1991	1.3	1992	1.3	1993	1.3

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.5.4A.

DATE: MARCH 31, 1981

TABLE 1.5.2C

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	2.2	1952	2.2	1953	2.2	1954	2.2	1955	2.2	1956	2.2	1957	2.2	1958	2.2	1959	2.2	1960	2.2	1961	2.2	1962	2.2
1952	2.2	1953	2.2	1954	2.2	1955	2.2	1956	2.2	1957	2.2	1958	2.2	1959	2.2	1960	2.2	1961	2.2	1962	2.2	1963	2.2
1953	2.1	1954	2.1	1955	2.1	1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1
1954	2.1	1955	2.1	1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1	1965	2.1
1955	2.1	1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1	1965	2.1	1966	2.1
1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1	1965	2.1	1966	2.1	1967	2.1
1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.0
1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.0	1969	2.0
1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	2.0
1960	1.9	1961	1.9	1962	1.9	1963	1.9	1964	1.9	1965	1.9	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	1.9	1971	1.9
1961	1.9	1962	1.9	1963	1.9	1964	1.9	1965	1.9	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	1.9	1971	1.9	1972	1.9
1962	1.9	1963	1.9	1964	1.9	1965	1.9	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	1.9	1971	1.9	1972	1.9	1973	1.9
1963	1.8	1964	1.8	1965	1.8	1966	1.8	1967	1.8	1968	1.8	1969	1.8	1970	1.8	1971	1.8	1972	1.8	1973	1.8	1974	1.8
1964	1.8	1965	1.8	1966	1.8	1967	1.8	1968	1.8	1969	1.8	1970	1.8	1971	1.8	1972	1.8	1973	1.8	1974	1.8	1975	2.0
1965	1.7	1966	1.7	1967	1.7	1968	1.7	1969	1.7	1970	1.7	1971	1.7	1972	1.7	1973	1.7	1974	1.7	1975	2.0	1976	2.0
1966	1.7	1967	1.7	1968	1.7	1969	1.7	1970	1.7	1971	1.7	1972	1.7	1973	1.7	1974	1.6	1975	1.9	1976	1.9	1977	1.7
1967	1.6	1968	1.6	1969	1.6	1970	1.6	1971	1.6	1972	1.6	1973	1.6	1974	1.6	1975	1.8	1976	1.8	1977	1.5	1978	1.8
1968	1.6	1969	1.6	1970	1.6	1971	1.6	1972	1.6	1973	1.6	1974	1.6	1975	1.8	1976	1.8	1977	1.4	1978	1.7	1979	1.6
1969	1.5	1970	1.5	1971	1.5	1972	1.5	1973	1.5	1974	1.5	1975	1.8	1976	1.8	1977	1.3	1978	1.6	1979	1.5	1980	1.6
1970	1.5	1971	1.5	1972	1.5	1973	1.5	1974	1.5	1975	1.8	1976	1.8	1977	1.3	1978	1.6	1979	1.5	1980	1.5	1981	1.1

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	2.2	1964	2.2	1965	2.2	1966	2.2	1967	2.2	1968	2.2	1969	2.2	1970	2.2	1971	2.2	1972	2.2	1973	2.2	1974	2.2
1964	2.2	1965	2.2	1966	2.2	1967	2.2	1968	2.2	1969	2.2	1970	2.2	1971	2.2	1972	2.2	1973	2.2	1974	2.2	1975	2.3
1965	2.1	1966	2.1	1967	2.1	1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.3	1976	2.3
1966	2.1	1967	2.1	1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.2	1976	2.2	1977	2.5
1967	2.1	1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.2	1976	2.2	1977	2.4	1978	2.4
1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.2	1976	2.2	1977	2.4	1978	2.4	1979	2.4
1969	2.0	1970	2.0	1971	2.0	1972	2.0	1973	2.0	1974	2.0	1975	2.2	1976	2.2	1977	2.3	1978	2.3	1979	2.3	1980	2.4
1970	2.0	1971	2.0	1972	2.0	1973	2.0	1974	2.0	1975	2.2	1976	2.2	1977	2.3	1978	2.3	1979	2.3	1980	2.3	1981	1.9
1971	2.0	1972	2.0	1973	2.0	1974	2.0	1975	2.2	1976	2.2	1977	2.2	1978	2.3	1979	2.2	1980	2.3	1981	1.9	1982	1.9
1972	1.9	1973	1.9	1974	1.9	1975	2.1	1976	2.1	1977	2.2	1978	2.2	1979	2.2	1980	2.2	1981	1.8	1982	1.8	1983	1.3
1973	1.9	1974	1.9	1975	2.1	1976	2.1	1977	2.1	1978	2.2	1979	2.1	1980	2.1	1981	1.8	1982	1.8	1983	1.3	1984	1.3
1974	1.9	1975	2.1	1976	2.1	1977	2.0	1978	2.1	1979	2.0	1980	2.1	1981	1.7	1982	1.7	1983	1.2	1984	1.2	1985	1.2
1975	2.0	1976	2.0	1977	1.9	1978	2.1	1979	2.0	1980	2.0	1981	1.6	1982	1.6	1983	1.2	1984	1.2	1985	1.2	1986	1.2
1976	2.0	1977	1.9	1978	2.0	1979	1.9	1980	1.9	1981	1.6	1982	1.6	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1
1977	1.8	1978	1.9	1979	1.8	1980	1.9	1981	1.5	1982	1.5	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1	1988	1.1
1978	1.9	1979	1.8	1980	1.8	1981	1.4	1982	1.4	1983	1.0	1984	1.0	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0
1979	1.7	1980	1.7	1981	1.3	1982	1.3	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9
1980	1.6	1981	1.3	1982	1.3	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.8	1989	0.9	1990	0.9	1991	0.9
1981	1.2	1982	1.2	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8
1982	1.1	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8	1993	0.8

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.5.4A.

DATE: MARCH 31, 1981

TABLE 1.5.3

IDLE EMISSION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1975	0.14	0.01
	1975-1976	0.03	0.0
	1977	0.04	0.0
	1978	0.06	0.0
	1979	0.05	0.0
	1980+	0.03	0.0
CO	Pre-1975	0.23	0.01
	1975-1976	0.14	0.01
	1977	0.16	0.01
	1978	0.17	0.01
	1979	0.18	0.01
	1980+	0.15	0.01
NOx	Pre-1975	0.13	0.0
	1975-1976	0.22	0.0
	1977	0.17	0.01
	1978	0.20	0.01
	1979	0.18	0.01
	1980	0.19	0.01
	1981-1982	0.14	0.01
	1983+	0.09	0.01

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.5.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.072	14400.	0.024	14400.	1800.
2	0.101	13900.	0.101	14275.	10784.
3	0.092	13400.	0.092	13775.	24809.
4	0.071	12800.	0.071	13250.	38331.
5	0.092	12300.	0.092	12675.	51284.
6	0.103	11800.	0.103	12175.	63709.
7	0.089	11200.	0.089	11650.	75631.
8	0.071	10700.	0.071	11075.	86984.
9	0.066	10200.	0.066	10575.	97809.
10	0.059	9600.	0.059	10050.	108131.
11	0.048	9100.	0.048	9475.	117884.
12	0.035	8600.	0.035	8975.	127109.
13	0.030	8000.	0.030	8450.	135831.
14	0.023	7500.	0.023	7875.	143984.
15	0.015	7000.	0.015	7375.	151609.
16	0.010	6400.	0.010	6850.	158731.
17	0.005	5900.	0.005	6275.	165284.
18	0.003	5400.	0.003	5775.	171309.
19	0.002	4900.	0.002	5275.	176833.
20+	0.015	4300.	0.015	4750.	181855.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 1.5.4B

FLEET SALES FRACTION* FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

Model Years	Sales Fraction
Pre-1975	0.0
1975	0.002
1976	0.003
1977	0.005
1978	0.009
1979	0.028
1980	0.034
1981	0.047
1982	0.075
1983	0.089
1984	0.095
1985	0.114
1986	0.138
1987	0.165
1988	0.176
1989	0.187
1990	0.197
1991+	0.200

* The estimated fraction of the light duty vehicle model year fleet which is diesel powered.

DATE: MARCH 31, 1981

TABLE 1.5.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) LDV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDDV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.024	0.114	0.003	0.073	14400.	1056.2	0.079
1984	0.101	0.095	0.010	0.257	14275.	3663.0	0.274
1983	0.092	0.089	0.008	0.219	13775.	3022.6	0.226
1982	0.071	0.075	0.005	0.142	13250.	1883.5	0.141
1981	0.092	0.047	0.004	0.115	12675.	1460.8	0.109
1980	0.103	0.034	0.003	0.093	12175.	1137.0	0.085
1979	0.089	0.028	0.002	0.067	11650.	775.4	0.058
1978	0.071	0.009	0.001	0.017	11075.	190.0	0.014
1977	0.066	0.005	0.000	0.009	10575.	93.3	0.007
1976	0.059	0.003	0.000	0.005	10050.	47.7	0.004
1975	0.048	0.002	0.000	0.003	9475.	24.2	0.002
1974	0.035	0.0	0.0	0.0	8975.	0.0	0.0
1973	0.030	0.0	0.0	0.0	8450.	0.0	0.0
1972	0.023	0.0	0.0	0.0	7875.	0.0	0.0
1971	0.015	0.0	0.0	0.0	7375.	0.0	0.0
1970	0.010	0.0	0.0	0.0	6850.	0.0	0.0
1969	0.005	0.0	0.0	0.0	6275.	0.0	0.0
1968	0.003	0.0	0.0	0.0	5775.	0.0	0.0
1967	0.002	0.0	0.0	0.0	5275.	0.0	0.0
1966-	0.015	0.0	0.0	0.0	4750.	0.0	0.0
			DAF: 0.037		TFNORM:	13353.6	

WHERE:

A = January 1 registration mix from Table 1.5.4A.
B = Fleet sales fractions from Table 1.5.4B.
D = Sales weighted fleet mileage accumulation rate from Table 1.5.4A, adjusted to January 1.
D(1) = Annual Miles(1)
D(MYI) = .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 1.5.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

* $SCF(s,sadj) = SF(s)/SF(sadj)$

$SF(s) = EXP(A + B*s + C*s^2)$

Pol	Model Years	Coefficients A	B	C
HC	All	0.90900	-0.05500	0.00044
CO	All	1.37520	-0.08800	0.00091
NOx	All	0.66800	-0.04800	0.00071

Where:
s = average speed (mph)
sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w.
[$1/sadj = (w+x)/26 + (1-w-x)/16$].

DATE: MARCH 31, 1981

TABLE 1.5.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1975	0.0	0.0	0.0	0.0	0.0	0.0
	1975-1976	0.0	0.0	0.0	0.0	0.0	0.0
	1977	0.0	0.0	0.0	0.0	0.0	0.0
	1978	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980+	0.0	0.0	0.0	0.0	0.0	0.0
CO	Pre-1975	0.0	0.0	0.0	0.0	0.0	0.0
	1975-1976	0.0	0.0	0.0	0.0	0.0	0.0
	1977	0.0	0.0	0.0	0.0	0.0	0.0
	1978	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980+	0.0	0.0	0.0	0.0	0.0	0.0
NOx	Pre-1975	0.0	0.0	0.0	0.0	0.0	0.0
	1975-1976	0.0	0.0	0.0	0.0	0.0	0.0
	1977	0.0	0.0	0.0	0.0	0.0	0.0
	1978	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980	0.0	0.0	0.0	0.0	0.0	0.0
	1981-1982	0.0	0.0	0.0	0.0	0.0	0.0
	1983+	0.0	0.0	0.0	0.0	0.0	0.0

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 1.5.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

NOTE: This table indicates diesel emissions are insensitive to temperature.

DATE: MARCH 31, 1981

TABLE 1.5.7B

NORMALIZED BAG FRACTIONS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1975	1.209	0.071	1.073	0.056	0.703	0.064	1.000	0.061
	1975-1976	1.209	0.136	1.073	0.111	0.703	0.110	1.000	0.116
	1977	1.209	0.068	1.073	0.053	0.703	0.062	1.000	0.059
	1978	1.203	0.101	1.073	0.081	0.703	0.085	1.000	0.086
	1979	1.209	0.082	1.073	0.065	0.703	0.072	1.000	0.070
	1980+	1.209	0.090	1.073	0.072	0.703	0.077	1.000	0.077
CO	Pre-1975	1.199	0.060	0.935	0.042	0.974	0.051	1.000	0.048
	1975-1976	1.199	0.062	0.935	0.044	0.974	0.053	1.000	0.050
	1977	1.199	0.071	0.935	0.051	0.974	0.060	1.000	0.058
	1978	1.199	0.076	0.935	0.055	0.974	0.064	1.000	0.062
	1979	1.199	0.065	0.935	0.046	0.974	0.055	1.000	0.052
	1980+	1.199	0.049	0.935	0.034	0.974	0.042	1.000	0.039
NOx	Pre-1975	1.068	0.026	0.981	0.029	0.985	0.026	1.000	0.028
	1975-1976	1.068	0.015	0.981	0.018	0.985	0.015	1.000	0.017
	1977	1.068	0.053	0.981	0.054	0.985	0.050	1.000	0.053
	1978	1.068	0.030	0.981	0.032	0.985	0.029	1.000	0.031
	1979	1.068	0.040	0.981	0.042	0.985	0.039	1.000	0.041
	1980	1.068	0.040	0.981	0.042	0.985	0.038	1.000	0.040
	1981-1982	1.068	0.054	0.981	0.055	0.985	0.052	1.000	0.054
	1983+	1.068	0.067	0.981	0.068	0.985	0.064	1.000	0.067

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.6.1

EXHAUST EMISSION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1979	0.94	0.09	1.39
	1979	0.85	0.08	1.25
	1980-1982	0.85	0.08	1.25
	1983+	0.61	0.06	0.91
CO	Pre-1979	1.80	0.09	2.25
	1979	2.06	0.10	2.56
	1980-1982	1.98	0.09	2.43
	1983+	1.98	0.09	2.43
NOx	Pre-1979	1.75	0.06	2.05
	1979	1.77	0.06	2.07
	1980-1984	1.89	0.07	2.24
	1985+	0.71	0.05	0.96

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.2, for the emission standards.

DATE: MARCH 31, 1981

TABLE 1.6.2A

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS
HC

January 1 of Calendar Year

1978		1979		1980		1981		1982		1983		1984		1985	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1959	-	1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-
1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-
1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-
1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-
1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-
1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-
1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-
1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	1.8
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	1.7	1979	1.5
1973	-	1974	-	1975	-	1976	-	1977	-	1978	1.6	1979	1.4	1980	1.4
1974	-	1975	-	1976	-	1977	-	1978	1.4	1979	1.3	1980	1.3	1981	1.3
1975	-	1976	-	1977	-	1978	1.3	1979	1.2	1980	1.2	1981	1.2	1982	1.2
1976	-	1977	-	1978	1.2	1979	1.1	1980	1.1	1981	1.1	1982	1.1	1983	0.8
1977	-	1978	1.0	1979	0.9	1980	0.9	1981	0.9	1982	0.9	1983	0.7	1984	0.7
1978	1.0	1979	0.9	1980	0.9	1981	0.9	1982	0.9	1983	0.6	1984	0.6	1985	0.6

January 1 of Calendar Year

1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.3
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.2	1979	2.0
1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.2	1979	2.0	1980	2.0
1974	-	1975	-	1976	-	1977	-	1978	2.1	1979	1.9	1980	1.9	1981	1.9
1975	-	1976	-	1977	-	1978	2.1	1979	1.9	1980	1.9	1981	1.9	1982	1.9
1976	-	1977	-	1978	2.0	1979	1.8	1980	1.8	1981	1.8	1982	1.8	1983	1.3
1977	-	1978	1.9	1979	1.7	1980	1.7	1981	1.7	1982	1.7	1983	1.3	1984	1.3
1978	1.9	1979	1.7	1980	1.7	1981	1.7	1982	1.7	1983	1.2	1984	1.2	1985	1.2
1979	1.6	1980	1.6	1981	1.6	1982	1.6	1983	1.2	1984	1.2	1985	1.2	1986	1.2
1980	1.5	1981	1.5	1982	1.5	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1
1981	1.4	1982	1.4	1983	1.0	1984	1.0	1985	1.0	1986	1.0	1987	1.0	1988	1.0
1982	1.3	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9
1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9
1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7	1992	0.7
1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.6.4A.

DATE: MARCH 31, 1981

TABLE 1.6.2B

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS
CO

January 1 of Calendar Year

1978		1979		1980		1981		1982		1983		1984		1985	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1959	-	1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-
1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-
1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-
1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-
1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-
1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-
1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-
1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.6
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.5	1979	2.9
1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.4	1979	2.8	1980	2.6
1974	-	1975	-	1976	-	1977	-	1978	2.3	1979	2.6	1980	2.5	1981	2.5
1975	-	1976	-	1977	-	1978	2.2	1979	2.5	1980	2.4	1981	2.4	1982	2.4
1976	-	1977	-	1978	2.0	1979	2.3	1980	2.2	1981	2.2	1982	2.2	1983	2.2
1977	-	1978	1.9	1979	2.2	1980	2.1	1981	2.1	1982	2.1	1983	2.1	1984	2.1
1978	1.8	1979	2.1	1980	2.0	1981	2.0	1982	2.0	1983	2.0	1984	2.0	1985	2.0

January 1 of Calendar Year

1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.1
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.1	1979	3.5
1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.1	1979	3.4	1980	3.2
1974	-	1975	-	1976	-	1977	-	1978	3.0	1979	3.4	1980	3.2	1981	3.2
1975	-	1976	-	1977	-	1978	2.9	1979	3.3	1980	3.1	1981	3.1	1982	3.1
1976	-	1977	-	1978	2.9	1979	3.3	1980	3.1	1981	3.1	1982	3.1	1983	3.1
1977	-	1978	2.8	1979	3.2	1980	3.0	1981	3.0	1982	3.0	1983	3.0	1984	3.0
1978	2.7	1979	3.1	1980	2.9	1981	2.9	1982	2.9	1983	2.9	1984	2.9	1985	2.9
1979	3.0	1980	2.8	1981	2.8	1982	2.8	1983	2.8	1984	2.8	1985	2.8	1986	2.8
1980	2.7	1981	2.7	1982	2.7	1983	2.7	1984	2.7	1985	2.7	1986	2.7	1987	2.7
1981	2.6	1982	2.6	1983	2.6	1984	2.6	1985	2.6	1986	2.6	1987	2.6	1988	2.6
1982	2.5	1983	2.5	1984	2.5	1985	2.5	1986	2.5	1987	2.5	1988	2.5	1989	2.5
1983	2.4	1984	2.4	1985	2.4	1986	2.4	1987	2.4	1988	2.4	1989	2.4	1990	2.4
1984	2.2	1985	2.2	1986	2.2	1987	2.2	1988	2.2	1989	2.2	1990	2.2	1991	2.2
1985	2.1	1986	2.1	1987	2.1	1988	2.1	1989	2.1	1990	2.1	1991	2.1	1992	2.1
1986	2.0	1987	2.0	1988	2.0	1989	2.0	1990	2.0	1991	2.0	1992	2.0	1993	2.0

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.6.4A.

DATE: MARCH 31, 1981

TABLE 1.6.2C

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS
NOx

January 1 of Calendar Year

1978		1979		1980		1981		1982		1983		1984		1985	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1959	-	1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-
1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-
1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-
1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-
1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-
1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-
1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-
1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.3
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.2	1979	2.3
1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.2	1979	2.2	1980	2.4
1974	-	1975	-	1976	-	1977	-	1978	2.1	1979	2.1	1980	2.3	1981	2.3
1975	-	1976	-	1977	-	1978	2.0	1979	2.0	1980	2.2	1981	2.2	1982	2.2
1976	-	1977	-	1978	1.9	1979	1.9	1980	2.1	1981	2.1	1982	2.1	1983	2.1
1977	-	1978	1.8	1979	1.8	1980	2.0	1981	2.0	1982	2.0	1983	2.0	1984	2.0
1978	1.8	1979	1.8	1980	1.9	1981	1.9	1982	1.9	1983	1.9	1984	1.9	1985	0.7

January 1 of Calendar Year

1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.6
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.6	1979	2.6
1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.6	1979	2.6	1980	2.9
1974	-	1975	-	1976	-	1977	-	1978	2.5	1979	2.6	1980	2.8	1981	2.8
1975	-	1976	-	1977	-	1978	2.5	1979	2.5	1980	2.8	1981	2.8	1982	2.8
1976	-	1977	-	1978	2.5	1979	2.5	1980	2.7	1981	2.7	1982	2.7	1983	2.7
1977	-	1978	2.4	1979	2.4	1980	2.7	1981	2.7	1982	2.7	1983	2.7	1984	2.7
1978	2.4	1979	2.4	1980	2.6	1981	2.6	1982	2.6	1983	2.6	1984	2.6	1985	1.2
1979	2.3	1980	2.5	1981	2.5	1982	2.5	1983	2.5	1984	2.5	1985	1.2	1986	1.2
1980	2.5	1981	2.5	1982	2.5	1983	2.5	1984	2.5	1985	1.1	1986	1.1	1987	1.1
1981	2.4	1982	2.4	1983	2.4	1984	2.4	1985	1.1	1986	1.1	1987	1.1	1988	1.1
1982	2.3	1983	2.3	1984	2.3	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0
1983	2.2	1984	2.2	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9
1984	2.1	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8
1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7	1992	0.7	1993	0.7

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.6.4A.

DATE: MARCH 31, 1981

TABLE 1.6.3

IDLE EMISSION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1979	0.08	0.01
	1979	0.10	0.01
	1980-1982	0.10	0.01
	1983+	0.07	0.01
CO	Pre-1979	0.30	0.02
	1979	0.32	0.02
	1980-1982	0.31	0.01
	1983+	0.31	0.01
NOx	Pre-1979	0.19	0.01
	1979	0.32	0.01
	1980-1984	0.34	0.01
	1985+	0.13	0.01

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.6.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per truck *	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.097	15700.	0.032	15700.	1962.
2	0.094	15100.	0.094	15550.	11756.
3	0.085	14600.	0.085	14975.	27009.
4	0.061	14000.	0.061	14450.	41731.
5	0.091	13000.	0.091	13750.	55869.
6	0.099	12100.	0.099	12775.	69122.
7	0.076	11000.	0.076	11825.	81441.
8	0.060	9700.	0.060	10675.	92709.
9	0.044	9300.	0.044	9600.	102762.
10	0.048	7400.	0.048	8825.	112115.
11	0.046	6800.	0.046	7250.	120031.
12	0.033	6100.	0.033	6625.	126978.
13	0.035	5500.	0.035	5950.	133256.
14	0.033	5000.	0.033	5375.	138909.
15	0.026	4600.	0.026	4900.	144037.
16	0.021	4200.	0.021	4500.	148737.
17	0.015	3800.	0.015	4100.	153037.
18	0.011	3100.	0.011	3625.	156927.
19	0.010	3100.	0.010	3100.	160224.
20+	0.013	3100.	0.013	3100.	163324.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 1.6.4B

FLEET SALES FRACTION* FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

Model Years	Sales Fraction
Pre-1978	0.0
1978	0.009
1979	0.028
1980	0.034
1981	0.047
1982	0.075
1983	0.089
1984	0.095
1985	0.114
1986	0.138
1987	0.165
1988	0.176
1989	0.187
1990	0.197
1991+	0.200

* The estimated fraction of the light duty truck model year fleet which is diesel powered.

DATE: MARCH 31, 1981

TABLE 1.6.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS
JANUARY 1, 1985

Model Years	(A) LDT1 Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDDT Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.032	0.114	0.004	0.105	15700.	1641.8	0.113
1984	0.094	0.095	0.009	0.255	15550.	3968.6	0.273
1983	0.085	0.089	0.008	0.216	14975.	3239.5	0.223
1982	0.061	0.075	0.005	0.131	14450.	1888.6	0.130
1981	0.091	0.047	0.004	0.121	13750.	1670.0	0.115
1980	0.099	0.034	0.003	0.096	12775.	1226.2	0.084
1979	0.076	0.028	0.002	0.060	11825.	714.4	0.049
1978	0.060	0.009	0.001	0.015	10675.	163.6	0.011
1977	0.044	0.0	0.0	0.0	9600.	0.0	0.0
1976	0.048	0.0	0.0	0.0	8825.	0.0	0.0
1975	0.046	0.0	0.0	0.0	7250.	0.0	0.0
1974	0.033	0.0	0.0	0.0	6625.	0.0	0.0
1973	0.035	0.0	0.0	0.0	5950.	0.0	0.0
1972	0.033	0.0	0.0	0.0	5375.	0.0	0.0
1971	0.026	0.0	0.0	0.0	4900.	0.0	0.0
1970	0.021	0.0	0.0	0.0	4500.	0.0	0.0
1969	0.015	0.0	0.0	0.0	4100.	0.0	0.0
1968	0.011	0.0	0.0	0.0	3625.	0.0	0.0
1967	0.010	0.0	0.0	0.0	3100.	0.0	0.0
1966-	0.013	0.0	0.0	0.0	3100.	0.0	0.0
			DAF: 0.035		TFNORM:	14512.8	

WHERE:

A = January 1 registration mix from Table 1.6.4A.
B = Fleet sales fractions from Table 1.6.4B.
D = Sales weighted fleet mileage accumulation rate from Table 1.6.4A, adjusted to January 1.
D(1) = Annual Miles(1)
D(MY1) = .25*(Annual Miles(MY1)) + .75*(Annual Miles(MY1-1)) , MY1=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 1.6.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

* $SCF(s,sadj) = SF(s)/SF(sadj)$

$SF(s) = EXP(A + B*s + C*s^2)$

Pol	Model Years	Coefficients A	B	C
HC	All	0.90900	-0.05500	0.00044
CO	All	1.37520	-0.08800	0.00091
NOx	All	0.66800	-0.04800	0.00071

Where:
s = average speed (mph)
sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w.
[$1/sadj = (w+x)/26 + (1-w-x)/16$].

DATE: MARCH 31, 1981

TABLE 1.6.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1979	0 0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980-1982	0.0	0.0	0.0	0.0	0.0	0.0
	1983+	0.0	0.0	0.0	0.0	0.0	0.0
CO	Pre-1979	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980-1982	0.0	0.0	0.0	0.0	0.0	0.0
	1983+	0.0	0.0	0.0	0.0	0.0	0.0
NOx	Pre-1979	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980-1984	0.0	0.0	0.0	0.0	0.0	0.0
	1985+	0.0	0.0	0.0	0.0	0.0	0.0

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 1.6.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

NOTE: This table indicates diesel emissions are insensitive to temperature.

DATE: MARCH 31, 1981

TABLE 1.6.7B

NORMALIZED BAG FRACTIONS FOR
LOW ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1979	1.209	0.112	1.073	0.091	0.703	0.093	1.000	0.096
	1979	1.209	0.110	1.073	0.089	0.703	0.092	1.000	0.094
	1980-1982	1.209	0.110	1.073	0.089	0.703	0.092	1.000	0.094
	1983+	1.209	0.115	1.073	0.093	0.703	0.095	1.000	0.098
CO	Pre-1979	1.199	0.062	0.935	0.044	0.974	0.053	1.000	0.050
	1979	1.199	0.060	0.935	0.043	0.974	0.051	1.000	0.049
	1980-1982	1.199	0.057	0.935	0.040	0.974	0.048	1.000	0.046
	1983+	1.199	0.057	0.935	0.040	0.974	0.048	1.000	0.046
NOx	Pre-1979	1.068	0.033	0.981	0.036	0.985	0.032	1.000	0.034
	1979	1.068	0.033	0.981	0.035	0.985	0.032	1.000	0.034
	1980-1984	1.068	0.036	0.981	0.038	0.985	0.035	1.000	0.037
	1985+	1.068	0.071	0.981	0.072	0.985	0.068	1.000	0.071

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.7.1

EXHAUST EMISSION RATES FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1985	3.49	0.04	3.69
	1985+	2.65	0.04	2.85
CO	Pre-1985	10.91	0.10	11.41
	1985+	10.91	0.10	11.41
NOx	Pre-1985	22.90	0.12	23.50
	1985+	5.43	0.07	5.78

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.4, for the emission standards.

DATE: MARCH 31, 1981

TABLE 1.7.2A

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	6.3	1952	6.3	1953	6.3	1954	6.3	1955	6.3	1956	6.3	1957	6.3	1958	6.3	1959	6.3	1960	6.3	1961	6.3	1962	6.3
1952	6.3	1953	6.3	1954	6.3	1955	6.3	1956	6.3	1957	6.3	1958	6.3	1959	6.3	1960	6.3	1961	6.3	1962	6.3	1963	6.3
1953	6.2	1954	6.2	1955	6.2	1956	6.2	1957	6.2	1958	6.2	1959	6.2	1960	6.2	1961	6.2	1962	6.2	1963	6.2	1964	6.2
1954	6.1	1955	6.1	1956	6.1	1957	6.1	1958	6.1	1959	6.1	1960	6.1	1961	6.1	1962	6.1	1963	6.1	1964	6.1	1965	6.1
1955	6.0	1956	6.0	1957	6.0	1958	6.0	1959	6.0	1960	6.0	1961	6.0	1962	6.0	1963	6.0	1964	6.0	1965	6.0	1966	6.0
1956	5.9	1957	5.9	1958	5.9	1959	5.9	1960	5.9	1961	5.9	1962	5.9	1963	5.9	1964	5.9	1965	5.9	1966	5.9	1967	5.9
1957	5.8	1958	5.8	1959	5.8	1960	5.8	1961	5.8	1962	5.8	1963	5.8	1964	5.8	1965	5.8	1966	5.8	1967	5.8	1968	5.8
1958	5.6	1959	5.6	1960	5.6	1961	5.6	1962	5.6	1963	5.6	1964	5.6	1965	5.6	1966	5.6	1967	5.6	1968	5.6	1969	5.6
1959	5.5	1960	5.5	1961	5.5	1962	5.5	1963	5.5	1964	5.5	1965	5.5	1966	5.5	1967	5.5	1968	5.5	1969	5.5	1970	5.5
1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	5.4	1971	5.4
1961	5.2	1962	5.2	1963	5.2	1964	5.2	1965	5.2	1966	5.2	1967	5.2	1968	5.2	1969	5.2	1970	5.2	1971	5.2	1972	5.2
1962	5.1	1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	5.1	1971	5.1	1972	5.1	1973	5.1
1963	4.9	1964	4.9	1965	4.9	1966	4.9	1967	4.9	1968	4.9	1969	4.9	1970	4.9	1971	4.9	1972	4.9	1973	4.9	1974	4.9
1964	4.8	1965	4.8	1966	4.8	1967	4.8	1968	4.8	1969	4.8	1970	4.8	1971	4.8	1972	4.8	1973	4.8	1974	4.8	1975	4.8
1965	4.6	1966	4.6	1967	4.6	1968	4.6	1969	4.6	1970	4.6	1971	4.6	1972	4.6	1973	4.6	1974	4.6	1975	4.6	1976	4.6
1966	4.4	1967	4.4	1968	4.4	1969	4.4	1970	4.4	1971	4.4	1972	4.4	1973	4.4	1974	4.4	1975	4.4	1976	4.4	1977	4.4
1967	4.2	1968	4.2	1969	4.2	1970	4.2	1971	4.2	1972	4.2	1973	4.2	1974	4.2	1975	4.2	1976	4.2	1977	4.2	1978	4.2
1968	3.9	1969	3.9	1970	3.9	1971	3.9	1972	3.9	1973	3.9	1974	3.9	1975	3.9	1976	3.9	1977	3.9	1978	3.9	1979	3.9
1969	3.6	1970	3.6	1971	3.6	1972	3.6	1973	3.6	1974	3.6	1975	3.6	1976	3.6	1977	3.6	1978	3.6	1979	3.6	1980	3.6
1970	3.5	1971	3.5	1972	3.5	1973	3.5	1974	3.5	1975	3.5	1976	3.5	1977	3.5	1978	3.5	1979	3.5	1980	3.5	1981	3.5

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	6.3	1964	6.3	1965	6.3	1966	6.3	1967	6.3	1968	6.3	1969	6.3	1970	6.3	1971	6.3	1972	6.3	1973	6.3	1974	6.3
1964	6.3	1965	6.3	1966	6.3	1967	6.3	1968	6.3	1969	6.3	1970	6.3	1971	6.3	1972	6.3	1973	6.3	1974	6.3	1975	6.3
1965	6.2	1966	6.2	1967	6.2	1968	6.2	1969	6.2	1970	6.2	1971	6.2	1972	6.2	1973	6.2	1974	6.2	1975	6.2	1976	6.2
1966	6.1	1967	6.1	1968	6.1	1969	6.1	1970	6.1	1971	6.1	1972	6.1	1973	6.1	1974	6.1	1975	6.1	1976	6.1	1977	6.1
1967	6.0	1968	6.0	1969	6.0	1970	6.0	1971	6.0	1972	6.0	1973	6.0	1974	6.0	1975	6.0	1976	6.0	1977	6.0	1978	6.0
1968	5.9	1969	5.9	1970	5.9	1971	5.9	1972	5.9	1973	5.9	1974	5.9	1975	5.9	1976	5.9	1977	5.9	1978	5.9	1979	5.9
1969	5.8	1970	5.8	1971	5.8	1972	5.8	1973	5.8	1974	5.8	1975	5.8	1976	5.8	1977	5.8	1978	5.8	1979	5.8	1980	5.8
1970	5.6	1971	5.6	1972	5.6	1973	5.6	1974	5.6	1975	5.6	1976	5.6	1977	5.6	1978	5.6	1979	5.6	1980	5.6	1981	5.6
1971	5.5	1972	5.5	1973	5.5	1974	5.5	1975	5.5	1976	5.5	1977	5.5	1978	5.5	1979	5.5	1980	5.5	1981	5.5	1982	5.5
1972	5.4	1973	5.4	1974	5.4	1975	5.4	1976	5.4	1977	5.4	1978	5.4	1979	5.4	1980	5.4	1981	5.4	1982	5.4	1983	5.4
1973	5.2	1974	5.2	1975	5.2	1976	5.2	1977	5.2	1978	5.2	1979	5.2	1980	5.2	1981	5.2	1982	5.2	1983	5.2	1984	5.2
1974	5.1	1975	5.1	1976	5.1	1977	5.1	1978	5.1	1979	5.1	1980	5.1	1981	5.1	1982	5.1	1983	5.1	1984	5.1	1985	4.3
1975	4.9	1976	4.9	1977	4.9	1978	4.9	1979	4.9	1980	4.9	1981	4.9	1982	4.9	1983	4.9	1984	4.9	1985	4.1	1986	4.1
1976	4.8	1977	4.8	1978	4.8	1979	4.8	1980	4.8	1981	4.8	1982	4.8	1983	4.8	1984	4.8	1985	3.9	1986	3.9	1987	3.9
1977	4.6	1978	4.6	1979	4.6	1980	4.6	1981	4.6	1982	4.6	1983	4.6	1984	4.6	1985	3.8	1986	3.8	1987	3.8	1988	3.8
1978	4.4	1979	4.4	1980	4.4	1981	4.4	1982	4.4	1983	4.4	1984	4.4	1985	3.5	1986	3.5	1987	3.5	1988	3.5	1989	3.5
1979	4.2	1980	4.2	1981	4.2	1982	4.2	1983	4.2	1984	4.2	1985	3.3	1986	3.3	1987	3.3	1988	3.3	1989	3.3	1990	3.3
1980	3.9	1981	3.9	1982	3.9	1983	3.9	1984	3.9	1985	3.1	1986	3.1	1987	3.1	1988	3.1	1989	3.1	1990	3.1	1991	3.1
1981	3.6	1982	3.6	1983	3.6	1984	3.6	1985	2.8	1986	2.8	1987	2.8	1988	2.8	1989	2.8	1990	2.8	1991	2.8	1992	2.8
1982	3.5	1983	3.5	1984	3.5	1985	2.6	1986	2.6	1987	2.6	1988	2.6	1989	2.6	1990	2.6	1991	2.6	1992	2.6	1993	2.6

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 1.7.4.

DATE: MARCH 31, 1981

TABLE 1.7.2B

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	18.0	1952	18.0	1953	18.0	1954	18.0	1955	18.0	1956	18.0	1957	18.0	1958	18.0	1959	18.0	1960	18.0	1961	18.0	1962	18.0
1952	17.8	1953	17.8	1954	17.8	1955	17.8	1956	17.8	1957	17.8	1958	17.8	1959	17.8	1960	17.8	1961	17.8	1962	17.8	1963	17.8
1953	17.7	1954	17.7	1955	17.7	1956	17.7	1957	17.7	1958	17.7	1959	17.7	1960	17.7	1961	17.7	1962	17.7	1963	17.7	1964	17.7
1954	17.4	1955	17.4	1956	17.4	1957	17.4	1958	17.4	1959	17.4	1960	17.4	1961	17.4	1962	17.4	1963	17.4	1964	17.4	1965	17.4
1955	17.2	1956	17.2	1957	17.2	1958	17.2	1959	17.2	1960	17.2	1961	17.2	1962	17.2	1963	17.2	1964	17.2	1965	17.2	1966	17.2
1956	16.9	1957	16.9	1958	16.9	1959	16.9	1960	16.9	1961	16.9	1962	16.9	1963	16.9	1964	16.9	1965	16.9	1966	16.9	1967	16.9
1957	16.6	1958	16.6	1959	16.6	1960	16.6	1961	16.6	1962	16.6	1963	16.6	1964	16.6	1965	16.6	1966	16.6	1967	16.6	1968	16.6
1958	16.3	1959	16.3	1960	16.3	1961	16.3	1962	16.3	1963	16.3	1964	16.3	1965	16.3	1966	16.3	1967	16.3	1968	16.3	1969	16.3
1959	15.9	1960	15.9	1961	15.9	1962	15.9	1963	15.9	1964	15.9	1965	15.9	1966	15.9	1967	15.9	1968	15.9	1969	15.9	1970	15.9
1960	15.6	1961	15.6	1962	15.6	1963	15.6	1964	15.6	1965	15.6	1966	15.6	1967	15.6	1968	15.6	1969	15.6	1970	15.6	1971	15.6
1961	15.3	1962	15.3	1963	15.3	1964	15.3	1965	15.3	1966	15.3	1967	15.3	1968	15.3	1969	15.3	1970	15.3	1971	15.3	1972	15.3
1962	14.9	1963	14.9	1964	14.9	1965	14.9	1966	14.9	1967	14.9	1968	14.9	1969	14.9	1970	14.9	1971	14.9	1972	14.9	1973	14.9
1963	14.5	1964	14.5	1965	14.5	1966	14.5	1967	14.5	1968	14.5	1969	14.5	1970	14.5	1971	14.5	1972	14.5	1973	14.5	1974	14.5
1964	14.1	1965	14.1	1966	14.1	1967	14.1	1968	14.1	1969	14.1	1970	14.1	1971	14.1	1972	14.1	1973	14.1	1974	14.1	1975	14.1
1965	13.7	1966	13.7	1967	13.7	1968	13.7	1969	13.7	1970	13.7	1971	13.7	1972	13.7	1973	13.7	1974	13.7	1975	13.7	1976	13.7
1966	13.2	1967	13.2	1968	13.2	1969	13.2	1970	13.2	1971	13.2	1972	13.2	1973	13.2	1974	13.2	1975	13.2	1976	13.2	1977	13.2
1967	12.6	1968	12.6	1969	12.6	1970	12.6	1971	12.6	1972	12.6	1973	12.6	1974	12.6	1975	12.6	1976	12.6	1977	12.6	1978	12.6
1968	11.9	1969	11.9	1970	11.9	1971	11.9	1972	11.9	1973	11.9	1974	11.9	1975	11.9	1976	11.9	1977	11.9	1978	11.9	1979	11.9
1969	11.3	1970	11.3	1971	11.3	1972	11.3	1973	11.3	1974	11.3	1975	11.3	1976	11.3	1977	11.3	1978	11.3	1979	11.3	1980	11.3
1970	10.9	1971	10.9	1972	10.9	1973	10.9	1974	10.9	1975	10.9	1976	10.9	1977	10.9	1978	10.9	1979	10.9	1980	10.9	1981	10.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	18.0	1964	18.0	1965	18.0	1966	18.0	1967	18.0	1968	18.0	1969	18.0	1970	18.0	1971	18.0	1972	18.0	1973	18.0	1974	18.0
1964	17.8	1965	17.8	1966	17.8	1967	17.8	1968	17.8	1969	17.8	1970	17.8	1971	17.8	1972	17.8	1973	17.8	1974	17.8	1975	17.8
1965	17.7	1966	17.7	1967	17.7	1968	17.7	1969	17.7	1970	17.7	1971	17.7	1972	17.7	1973	17.7	1974	17.7	1975	17.7	1976	17.7
1966	17.4	1967	17.4	1968	17.4	1969	17.4	1970	17.4	1971	17.4	1972	17.4	1973	17.4	1974	17.4	1975	17.4	1976	17.4	1977	17.4
1967	17.2	1968	17.2	1969	17.2	1970	17.2	1971	17.2	1972	17.2	1973	17.2	1974	17.2	1975	17.2	1976	17.2	1977	17.2	1978	17.2
1968	16.9	1969	16.9	1970	16.9	1971	16.9	1972	16.9	1973	16.9	1974	16.9	1975	16.9	1976	16.9	1977	16.9	1978	16.9	1979	16.9
1969	16.6	1970	16.6	1971	16.6	1972	16.6	1973	16.6	1974	16.6	1975	16.6	1976	16.6	1977	16.6	1978	16.6	1979	16.6	1980	16.6
1970	16.3	1971	16.3	1972	16.3	1973	16.3	1974	16.3	1975	16.3	1976	16.3	1977	16.3	1978	16.3	1979	16.3	1980	16.3	1981	16.3
1971	15.9	1972	15.9	1973	15.9	1974	15.9	1975	15.9	1976	15.9	1977	15.9	1978	15.9	1979	15.9	1980	15.9	1981	15.9	1982	15.9
1972	15.6	1973	15.6	1974	15.6	1975	15.6	1976	15.6	1977	15.6	1978	15.6	1979	15.6	1980	15.6	1981	15.6	1982	15.6	1983	15.6
1973	15.3	1974	15.3	1975	15.3	1976	15.3	1977	15.3	1978	15.3	1979	15.3	1980	15.3	1981	15.3	1982	15.3	1983	15.3	1984	15.3
1974	14.9	1975	14.9	1976	14.9	1977	14.9	1978	14.9	1979	14.9	1980	14.9	1981	14.9	1982	14.9	1983	14.9	1984	14.9	1985	14.9
1975	14.5	1976	14.5	1977	14.5	1978	14.5	1979	14.5	1980	14.5	1981	14.5	1982	14.5	1983	14.5	1984	14.5	1985	14.5	1986	14.5
1976	14.1	1977	14.1	1978	14.1	1979	14.1	1980	14.1	1981	14.1	1982	14.1	1983	14.1	1984	14.1	1985	14.1	1986	14.1	1987	14.1
1977	13.7	1978	13.7	1979	13.7	1980	13.7	1981	13.7	1982	13.7	1983	13.7	1984	13.7	1985	13.7	1986	13.7	1987	13.7	1988	13.7
1978	13.2	1979	13.2	1980	13.2	1981	13.2	1982	13.2	1983	13.2	1984	13.2	1985	13.2	1986	13.2	1987	13.2	1988	13.2	1989	13.2
1979	12.6	1980	12.6	1981	12.6	1982	12.6	1983	12.6	1984	12.6	1985	12.6	1986	12.6	1987	12.6	1988	12.6	1989	12.6	1990	12.6
1980	11.9	1981	11.9	1982	11.9	1983	11.9	1984	11.9	1985	11.9	1986	11.9	1987	11.9	1988	11.9	1989	11.9	1990	11.9	1991	11.9
1981	11.3	1982	11.3	1983	11.3	1984	11.3	1985	11.3	1986	11.3	1987	11.3	1988	11.3	1989	11.3	1990	11.3	1991	11.3	1992	11.3
1982	10.9	1983	10.9	1984	10.9	1985	10.9	1986	10.9	1987	10.9	1988	10.9	1989	10.9	1990	10.9	1991	10.9	1992	10.9	1993	10.9

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F. Emissions are based on the January 1 mileage accumulation figures given in Table 1.7.4.

DATE: MARCH 31, 1981

TABLE 1.7.2C

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	31.4	1952	31.4	1953	31.4	1954	31.4	1955	31.4	1956	31.4	1957	31.4	1958	31.4	1959	31.4	1960	31.4	1961	31.4	1962	31.4
1952	31.2	1953	31.2	1954	31.2	1955	31.2	1956	31.2	1957	31.2	1958	31.2	1959	31.2	1960	31.2	1961	31.2	1962	31.2	1963	31.2
1953	31.0	1954	31.0	1955	31.0	1956	31.0	1957	31.0	1958	31.0	1959	31.0	1960	31.0	1961	31.0	1962	31.0	1963	31.0	1964	31.0
1954	30.7	1955	30.7	1956	30.7	1957	30.7	1958	30.7	1959	30.7	1960	30.7	1961	30.7	1962	30.7	1963	30.7	1964	30.7	1965	30.7
1955	30.4	1956	30.4	1957	30.4	1958	30.4	1959	30.4	1960	30.4	1961	30.4	1962	30.4	1963	30.4	1964	30.4	1965	30.4	1966	30.4
1956	30.1	1957	30.1	1958	30.1	1959	30.1	1960	30.1	1961	30.1	1962	30.1	1963	30.1	1964	30.1	1965	30.1	1966	30.1	1967	30.1
1957	29.7	1958	29.7	1959	29.7	1960	29.7	1961	29.7	1962	29.7	1963	29.7	1964	29.7	1965	29.7	1966	29.7	1967	29.7	1968	29.7
1958	29.3	1959	29.3	1960	29.3	1961	29.3	1962	29.3	1963	29.3	1964	29.3	1965	29.3	1966	29.3	1967	29.3	1968	29.3	1969	29.3
1959	28.9	1960	28.9	1961	28.9	1962	28.9	1963	28.9	1964	28.9	1965	28.9	1966	28.9	1967	28.9	1968	28.9	1969	28.9	1970	28.9
1960	28.5	1961	28.5	1962	28.5	1963	28.5	1964	28.5	1965	28.5	1966	28.5	1967	28.5	1968	28.5	1969	28.5	1970	28.5	1971	28.5
1961	28.1	1962	28.1	1963	28.1	1964	28.1	1965	28.1	1966	28.1	1967	28.1	1968	28.1	1969	28.1	1970	28.1	1971	28.1	1972	28.1
1962	27.7	1963	27.7	1964	27.7	1965	27.7	1966	27.7	1967	27.7	1968	27.7	1969	27.7	1970	27.7	1971	27.7	1972	27.7	1973	27.7
1963	27.3	1964	27.3	1965	27.3	1966	27.3	1967	27.3	1968	27.3	1969	27.3	1970	27.3	1971	27.3	1972	27.3	1973	27.3	1974	27.3
1964	26.8	1965	26.8	1966	26.8	1967	26.8	1968	26.8	1969	26.8	1970	26.8	1971	26.8	1972	26.8	1973	26.8	1974	26.8	1975	26.8
1965	26.2	1966	26.2	1967	26.2	1968	26.2	1969	26.2	1970	26.2	1971	26.2	1972	26.2	1973	26.2	1974	26.2	1975	26.2	1976	26.2
1966	25.6	1967	25.6	1968	25.6	1969	25.6	1970	25.6	1971	25.6	1972	25.6	1973	25.6	1974	25.6	1975	25.6	1976	25.6	1977	25.6
1967	24.9	1968	24.9	1969	24.9	1970	24.9	1971	24.9	1972	24.9	1973	24.9	1974	24.9	1975	24.9	1976	24.9	1977	24.9	1978	24.9
1968	24.1	1969	24.1	1970	24.1	1971	24.1	1972	24.1	1973	24.1	1974	24.1	1975	24.1	1976	24.1	1977	24.1	1978	24.1	1979	24.1
1969	23.3	1970	23.3	1971	23.3	1972	23.3	1973	23.3	1974	23.3	1975	23.3	1976	23.3	1977	23.3	1978	23.3	1979	23.3	1980	23.3
1970	22.9	1971	22.9	1972	22.9	1973	22.9	1974	22.9	1975	22.9	1976	22.9	1977	22.9	1978	22.9	1979	22.9	1980	22.9	1981	22.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	31.4	1964	31.4	1965	31.4	1966	31.4	1967	31.4	1968	31.4	1969	31.4	1970	31.4	1971	31.4	1972	31.4	1973	31.4	1974	31.4
1964	31.2	1965	31.2	1966	31.2	1967	31.2	1968	31.2	1969	31.2	1970	31.2	1971	31.2	1972	31.2	1973	31.2	1974	31.2	1975	31.2
1965	31.0	1966	31.0	1967	31.0	1968	31.0	1969	31.0	1970	31.0	1971	31.0	1972	31.0	1973	31.0	1974	31.0	1975	31.0	1976	31.0
1966	30.7	1967	30.7	1968	30.7	1969	30.7	1970	30.7	1971	30.7	1972	30.7	1973	30.7	1974	30.7	1975	30.7	1976	30.7	1977	30.7
1967	30.4	1968	30.4	1969	30.4	1970	30.4	1971	30.4	1972	30.4	1973	30.4	1974	30.4	1975	30.4	1976	30.4	1977	30.4	1978	30.4
1968	30.1	1969	30.1	1970	30.1	1971	30.1	1972	30.1	1973	30.1	1974	30.1	1975	30.1	1976	30.1	1977	30.1	1978	30.1	1979	30.1
1969	29.7	1970	29.7	1971	29.7	1972	29.7	1973	29.7	1974	29.7	1975	29.7	1976	29.7	1977	29.7	1978	29.7	1979	29.7	1980	29.7
1970	29.3	1971	29.3	1972	29.3	1973	29.3	1974	29.3	1975	29.3	1976	29.3	1977	29.3	1978	29.3	1979	29.3	1980	29.3	1981	29.3
1971	28.9	1972	28.9	1973	28.9	1974	28.9	1975	28.9	1976	28.9	1977	28.9	1978	28.9	1979	28.9	1980	28.9	1981	28.9	1982	28.9
1972	28.5	1973	28.5	1974	28.5	1975	28.5	1976	28.5	1977	28.5	1978	28.5	1979	28.5	1980	28.5	1981	28.5	1982	28.5	1983	28.5
1973	28.1	1974	28.1	1975	28.1	1976	28.1	1977	28.1	1978	28.1	1979	28.1	1980	28.1	1981	28.1	1982	28.1	1983	28.1	1984	28.1
1974	27.7	1975	27.7	1976	27.7	1977	27.7	1978	27.7	1979	27.7	1980	27.7	1981	27.7	1982	27.7	1983	27.7	1984	27.7	1985	8.2
1975	27.3	1976	27.3	1977	27.3	1978	27.3	1979	27.3	1980	27.3	1981	27.3	1982	27.3	1983	27.3	1984	27.3	1985	8.0	1986	8.0
1976	26.8	1977	26.8	1978	26.8	1979	26.8	1980	26.8	1981	26.8	1982	26.8	1983	26.8	1984	26.8	1985	7.7	1986	7.7	1987	7.7
1977	26.2	1978	26.2	1979	26.2	1980	26.2	1981	26.2	1982	26.2	1983	26.2	1984	26.2	1985	7.4	1986	7.4	1987	7.4	1988	7.4
1978	25.6	1979	25.6	1980	25.6	1981	25.6	1982	25.6	1983	25.6	1984	25.6	1985	7.0	1986	7.0	1987	7.0	1988	7.0	1989	7.0
1979	24.9	1980	24.9	1981	24.9	1982	24.9	1983	24.9	1984	24.9	1985	6.6	1986	6.6	1987	6.6	1988	6.6	1989	6.6	1990	6.6
1980	24.1	1981	24.1	1982	24.1	1983	24.1	1984	24.1	1985	6.2	1986	6.2	1987	6.2	1988	6.2	1989	6.2	1990	6.2	1991	6.2
1981	23.3	1982	23.3	1983	23.3	1984	23.3	1985	5.7	1986	5.7	1987	5.7	1988	5.7	1989	5.7	1990	5.7	1991	5.7	1992	5.7
1982	22.9	1983	22.9	1984	22.9	1985	5.4	1986	5.4	1987	5.4	1988	5.4	1989	5.4	1990	5.4	1991	5.4	1992	5.4	1993	5.4

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F. Emissions are based on the January 1 mileage accumulation figures given in Table 1.7.4.

DATE: MARCH 31, 1981

TABLE 1.7.3

IDLE EMISSION RATES FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1985	0.36	0.0
	1985+	0.27	0.0
CO	Pre-1985	0.67	0.01
	1985+	0.67	0.01
NOx	Pre-1985	0.92	0.0
	1985+	0.22	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.7.4

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.177	70400.	0.0	0.	0.
2	0.142	66900.	0.142	70400.	35200.
3	0.085	60600.	0.085	66900.	103850.
4	0.054	54200.	0.054	60600.	167600.
5	0.098	47900.	0.098	54200.	225000.
6	0.093	43700.	0.093	47900.	276050.
7	0.072	39400.	0.072	43700.	321850.
8	0.052	36600.	0.052	39400.	363399.
9	0.042	34500.	0.042	36600.	401399.
10	0.042	33100.	0.042	34500.	436949.
11	0.031	32400.	0.031	33100.	470749.
12	0.024	31700.	0.024	32400.	503499.
13	0.025	31000.	0.025	31700.	535549.
14	0.019	29600.	0.019	31000.	566899.
15	0.013	27500.	0.013	29600.	597199.
16	0.010	24600.	0.010	27500.	625749.
17	0.007	20400.	0.007	24600.	651799.
18	0.004	17600.	0.004	20400.	674299.
19	0.004	17600.	0.004	17600.	693299.
20+	0.007	17600.	0.007	17600.	710898.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 1.7.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) HDDV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) HDDV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.0	1.000	0.0	0.0	0.	0.0	0.0
1984	0.142	1.000	0.142	0.172	70400.	12135.6	0.243
1983	0.085	1.000	0.085	0.104	66900.	6937.2	0.139
1982	0.054	1.000	0.054	0.065	60600.	3948.7	0.079
1981	0.098	1.000	0.098	0.120	54200.	6483.4	0.130
1980	0.093	1.000	0.093	0.113	47900.	5432.9	0.109
1979	0.072	1.000	0.072	0.088	43700.	3824.9	0.076
1978	0.052	1.000	0.052	0.063	39400.	2466.7	0.049
1977	0.042	1.000	0.042	0.051	36600.	1873.2	0.037
1976	0.042	1.000	0.042	0.051	34500.	1748.9	0.035
1975	0.031	1.000	0.031	0.038	33100.	1243.4	0.025
1974	0.024	1.000	0.024	0.029	32400.	925.6	0.018
1973	0.025	1.000	0.025	0.031	31700.	975.0	0.019
1972	0.019	1.000	0.019	0.023	31000.	727.3	0.015
1971	0.013	1.000	0.013	0.016	29600.	464.2	0.009
1970	0.010	1.000	0.010	0.012	27500.	317.6	0.006
1969	0.007	1.000	0.007	0.009	24600.	209.3	0.004
1968	0.004	1.000	0.004	0.005	20400.	94.2	0.002
1967	0.004	1.000	0.004	0.005	17600.	81.3	0.002
1966-	0.007	1.000	0.007	0.008	17600.	147.6	0.003
		DAF:	0.823		TFNORM:	50037.0	

WHERE:

A = January 1 registration mix from Table 1.7.4.
B = Fleet sales fractions will always equal 1.000 for HDDVs.
D = Sales weighted fleet mileage accumulation rate from Table 1.7.4, adjusted to January 1.
D(1) = 0
D(MYI) = Annual Miles(MYI-1) , MYI=2,...,20+

DATE: MARCH 31, 1981

TABLE 1.7.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES

* $SCF(s) = EXP(A + B*s + C*s^2)$

Pol	Model Years	Coefficients A	B	C
HC	All	0.92400	-0.05500	0.00044
CO	All	1.39600	-0.08800	0.00091
NOx	All	0.67600	-0.04800	0.00071

* where s = average speed (mph)

DATE: MARCH 31, 1981

TABLE 1.7.7

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES

* TCF = EXP(TC * (T - TT))

Pol	Model Years	TC Low	TC High
HC	All	0.0	0.0
CO	All	0.0	0.0
NOx	All	0.0	0.0

* WHERE:
T = Ambient temperature (Fahrenheit)
TC = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: This table indicates diesel emissions are insensitive to temperature.

DATE: MARCH 31, 1981

TABLE 1.8.1A

EXHAUST EMISSION RATES FOR
LOW ALTITUDE 49-STATE
MOTORCYCLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1978	8.90	0.78	12.80
	1978-1979	3.40	1.65	11.65
	1980+	2.70	1.73	11.35
CO	Pre-1978	34.30	2.47	46.65
	1978-1979	23.10	3.96	42.90
	1980+	18.50	2.02	28.60
NOx	Pre-1978	0.20	0.06	0.50
	1978-1979	0.65	0.0	0.65
	1980+	0.85	0.0	0.85

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.5, for the emission standards.

DATE: MARCH 31, 1981

TABLE 1.8.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
LOW ALTITUDE 49-STATE
MOTORCYCLES

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1978	4.56	1.35	6.71	8.30	0.31	1.86
1978-1979	7.00	1.35	8.44	8.30	0.0	2.16
1980+	7.53	1.35	8.60	8.30	0.0	2.26

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 1.8.2A

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
MOTORCYCLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	10.0	1952	10.0	1953	10.0	1954	10.0	1955	10.0	1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0
1952	10.0	1953	10.0	1954	10.0	1955	10.0	1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0
1953	10.0	1954	10.0	1955	10.0	1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0
1954	10.0	1955	10.0	1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0
1955	10.0	1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0
1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0
1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0
1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0
1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0
1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0
1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0
1962	9.9	1963	9.9	1964	9.9	1965	9.9	1966	9.9	1967	9.9	1968	9.9	1969	9.9	1970	9.9	1971	9.9	1972	9.9	1973	9.9
1963	9.9	1964	9.9	1965	9.9	1966	9.9	1967	9.9	1968	9.9	1969	9.9	1970	9.9	1971	9.9	1972	9.9	1973	9.9	1974	9.9
1964	9.9	1965	9.9	1966	9.9	1967	9.9	1968	9.9	1969	9.9	1970	9.9	1971	9.9	1972	9.9	1973	9.9	1974	9.9	1975	9.9
1965	9.8	1966	9.8	1967	9.8	1968	9.8	1969	9.8	1970	9.8	1971	9.8	1972	9.8	1973	9.8	1974	9.8	1975	9.8	1976	9.8
1966	9.7	1967	9.7	1968	9.7	1969	9.7	1970	9.7	1971	9.7	1972	9.7	1973	9.7	1974	9.7	1975	9.7	1976	9.7	1977	9.7
1967	9.5	1968	9.5	1969	9.5	1970	9.5	1971	9.5	1972	9.5	1973	9.5	1974	9.5	1975	9.5	1976	9.5	1977	9.5	1978	4.7
1968	9.3	1969	9.3	1970	9.3	1971	9.3	1972	9.3	1973	9.3	1974	9.3	1975	9.3	1976	9.3	1977	9.3	1978	4.3	1979	4.3
1969	9.1	1970	9.1	1971	9.1	1972	9.1	1973	9.1	1974	9.1	1975	9.1	1976	9.1	1977	9.1	1978	3.7	1979	3.7	1980	3.1
1970	8.9	1971	8.9	1972	8.9	1973	8.9	1974	8.9	1975	8.9	1976	8.9	1977	8.9	1978	3.4	1979	3.4	1980	2.7	1981	2.7

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0
1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0
1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0
1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0
1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.7
1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.7	1979	5.7
1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.7	1979	5.7	1980	5.2
1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.7	1979	5.7	1980	5.2	1981	5.2
1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.7	1979	5.7	1980	5.1	1981	5.1	1982	5.1
1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.7	1979	5.7	1980	5.1	1981	5.1	1982	5.1	1983	5.1
1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.7	1979	5.7	1980	5.1	1981	5.1	1982	5.1	1983	5.1	1984	5.1
1974	9.9	1975	9.9	1976	9.9	1977	9.9	1978	5.6	1979	5.6	1980	5.0	1981	5.0	1982	5.0	1983	5.0	1984	5.0	1985	5.0
1975	9.9	1976	9.9	1977	9.9	1978	5.5	1979	5.5	1980	4.9	1981	4.9	1982	4.9	1983	4.9	1984	4.9	1985	4.9	1986	4.9
1976	9.9	1977	9.9	1978	5.4	1979	5.4	1980	4.8	1981	4.8	1982	4.8	1983	4.8	1984	4.8	1985	4.8	1986	4.8	1987	4.8
1977	9.8	1978	5.2	1979	5.2	1980	4.6	1981	4.6	1982	4.6	1983	4.6	1984	4.6	1985	4.6	1986	4.6	1987	4.6	1988	4.6
1978	5.0	1979	5.0	1980	4.4	1981	4.4	1982	4.4	1983	4.4	1984	4.4	1985	4.4	1986	4.4	1987	4.4	1988	4.4	1989	4.4
1979	4.7	1980	4.1	1981	4.1	1982	4.1	1983	4.1	1984	4.1	1985	4.1	1986	4.1	1987	4.1	1988	4.1	1989	4.1	1990	4.1
1980	3.7	1981	3.7	1982	3.7	1983	3.7	1984	3.7	1985	3.7	1986	3.7	1987	3.7	1988	3.7	1989	3.7	1990	3.7	1991	3.7
1981	3.1	1982	3.1	1983	3.1	1984	3.1	1985	3.1	1986	3.1	1987	3.1	1988	3.1	1989	3.1	1990	3.1	1991	3.1	1992	3.1
1982	2.7	1983	2.7	1984	2.7	1985	2.7	1986	2.7	1987	2.7	1988	2.7	1989	2.7	1990	2.7	1991	2.7	1992	2.7	1993	2.7

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.8.4.

DATE: MARCH 31, 1981

TABLE 1.8.2B

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
MOTORCYCLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	37.8	1952	37.8	1953	37.8	1954	37.8	1955	37.8	1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8
1952	37.8	1953	37.8	1954	37.8	1955	37.8	1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8
1953	37.8	1954	37.8	1955	37.8	1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8
1954	37.8	1955	37.8	1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8
1955	37.8	1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8	1966	37.8
1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8	1966	37.8	1967	37.8
1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8	1966	37.8	1967	37.8	1968	37.8
1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8	1966	37.8	1967	37.8	1968	37.8	1969	37.8
1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8	1966	37.8	1967	37.8	1968	37.8	1969	37.8	1970	37.8
1960	37.7	1961	37.7	1962	37.7	1963	37.7	1964	37.7	1965	37.7	1966	37.7	1967	37.7	1968	37.7	1969	37.7	1970	37.7	1971	37.7
1961	37.7	1962	37.7	1963	37.7	1964	37.7	1965	37.7	1966	37.7	1967	37.7	1968	37.7	1969	37.7	1970	37.7	1971	37.7	1972	37.7
1962	37.6	1963	37.6	1964	37.6	1965	37.6	1966	37.6	1967	37.6	1968	37.6	1969	37.6	1970	37.6	1971	37.6	1972	37.6	1973	37.6
1963	37.5	1964	37.5	1965	37.5	1966	37.5	1967	37.5	1968	37.5	1969	37.5	1970	37.5	1971	37.5	1972	37.5	1973	37.5	1974	37.5
1964	37.3	1965	37.3	1966	37.3	1967	37.3	1968	37.3	1969	37.3	1970	37.3	1971	37.3	1972	37.3	1973	37.3	1974	37.3	1975	37.3
1965	37.1	1966	37.1	1967	37.1	1968	37.1	1969	37.1	1970	37.1	1971	37.1	1972	37.1	1973	37.1	1974	37.1	1975	37.1	1976	37.1
1966	36.7	1967	36.7	1968	36.7	1969	36.7	1970	36.7	1971	36.7	1972	36.7	1973	36.7	1974	36.7	1975	36.7	1976	36.7	1977	36.7
1967	36.3	1968	36.3	1969	36.3	1970	36.3	1971	36.3	1972	36.3	1973	36.3	1974	36.3	1975	36.3	1976	36.3	1977	36.3	1978	26.2
1968	35.7	1969	35.7	1970	35.7	1971	35.7	1972	35.7	1973	35.7	1974	35.7	1975	35.7	1976	35.7	1977	35.7	1978	25.3	1979	25.3
1969	34.8	1970	34.8	1971	34.8	1972	34.8	1973	34.8	1974	34.8	1975	34.8	1976	34.8	1977	34.8	1978	23.9	1979	23.9	1980	18.9
1970	34.3	1971	34.3	1972	34.3	1973	34.3	1974	34.3	1975	34.3	1976	34.3	1977	34.3	1978	23.1	1979	23.1	1980	18.5	1981	18.5

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	37.8	1964	37.8	1965	37.8	1966	37,.8	1967	37.8	1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8
1964	37.8	1965	37.8	1966	37.8	1967	37.8	1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8
1965	37.8	1966	37.8	1967	37.8	1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8
1966	37.8	1967	37.8	1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8
1967	37.8	1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8	1978	28.7
1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8	1978	28.7	1979	28.7
1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8	1978	28.7	1979	28.7	1980	21.4
1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8	1978	28.7	1979	28.7	1980	21.4	1981	21.4
1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8	1978	28.7	1979	28.7	1980	21.3	1981	21.3	1982	21.3
1972	37.7	1973	37.7	1974	37.7	1975	37.7	1976	37.7	1977	37.7	1978	28.6	1979	28.6	1980	21.3	1981	21.3	1982	21.3	1983	21.3
1973	37.7	1974	37.7	1975	37.7	1976	37.7	1977	37.7	1978	28.5	1979	28.5	1980	21.3	1981	21.3	1982	21.3	1983	21.3	1984	21.3
1974	37.6	1975	37.6	1976	37.6	1977	37.6	1978	28.4	1979	28.4	1980	21.2	1981	21.2	1982	21.2	1983	21.2	1984	21.2	1985	21.2
1975	37.5	1976	37.5	1977	37.5	1978	28.2	1979	28.2	1980	21.1	1981	21.1	1982	21.1	1983	21.1	1984	21.1	1985	21.1	1986	21.1
1976	37.3	1977	37.3	1978	27.9	1979	27.9	1980	21.0	1981	21.0	1982	21.0	1983	21.0	1984	21.0	1985	21.0	1986	21.0	1987	21.0
1977	37.1	1978	27.5	1979	27.5	1980	20.8	1981	20.8	1982	20.8	1983	20.8	1984	20.8	1985	20.8	1986	20.8	1987	20.8	1988	20.8
1978	27.0	1979	27.0	1980	20.5	1981	20.5	1982	20.5	1983	20.5	1984	20.5	1985	20.5	1986	20.5	1987	20.5	1988	20.5	1989	20.5
1979	26.2	1980	20.1	1981	20.1	1982	20.1	1983	20.1	1984	20.1	1985	20.1	1986	20.1	1987	20.1	1988	20.1	1989	20.1	1990	20.1
1980	19.6	1981	19.6	1982	19.6	1983	19.6	1984	19.6	1985	19.6	1986	19.6	1987	19.6	1988	19.6	1989	19.6	1990	19.6	1991	19.6
1981	18.9	1982	18.9	1983	18.9	1984	18.9	1985	18.9	1986	18.9	1987	18.9	1988	18.9	1989	18.9	1990	18.9	1991	18.9	1992	18.9
1982	18.5	1983	18.5	1984	18.5	1985	18.5	1986	18.5	1987	18.5	1988	18.5	1989	18.5	1990	18.5	1991	18.5	1992	18.5	1993	18.5

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.8.4.

DATE: MARCH 31, 1981

TABLE 1.8.2C

EXHAUST EMISSION LEVELS FOR
LOW ALTITUDE 49-STATE
MOTORCYCLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	0.3	1952	0.3	1953	0.3	1954	0.3	1955	0.3	1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3
1952	0.3	1953	0.3	1954	0.3	1955	0.3	1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3
1953	0.3	1954	0.3	1955	0.3	1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3
1954	0.3	1955	0.3	1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3
1955	0.3	1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3
1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3
1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3
1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3
1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3
1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3
1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3
1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3
1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3
1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3
1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3
1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3
1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.6
1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.6	1979	0.6
1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.6	1979	0.6	1980	0.8
1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.6	1979	0.6	1980	0.8	1981	0.8

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3
1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3
1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3
1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3
1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6
1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6
1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8
1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8
1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8
1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8
1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8
1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8
1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8
1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8
1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8
1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8
1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8
1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8
1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8	1993	0.8

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 1.8.4.

DATE: MARCH 31, 1981

TABLE 1.8.3

IDLE EMISSION RATES FOR
LOW ALTITUDE 49-STATE
MOTORCYCLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1978	1.95	0.42
	1978-1979	0.74	0.36
	1980+	0.59	0.38
CO	Pre-1978	4.33	0.23
	1978-1979	2.92	0.50
	1980+	2.34	0.26
NOx	Pre-1978	0.01	0.0
	1978-1979	0.03	0.0
	1980+	0.04	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 1.8.4

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
LOW ALTITUDE 49-STATE
MOTORCYCLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.133	4100.	0.044	0.	0.
2	0.145	2800.	0.145	4100.	2050.
3	0.138	2100.	0.138	2800.	5500.
4	0.116	1600.	0.116	2100.	7950.
5	0.123	1200.	0.123	1600.	9800.
6	0.114	800.	0.114	1200.	11200.
7	0.069	600.	0.069	800.	12200.
8	0.044	400.	0.044	600.	12900.
9	0.024	200.	0.024	400.	13400.
10	0.009	200.	0.009	200.	13700.
11	0.085	200.	0.085	200.	13900.
12	0.0	0.	0.0	200.	14100.
13	0.0	0.	0.0	0.	14200.
14	0.0	0.	0.0	0.	14200.
15	0.0	0.	0.0	0.	14200.
16	0.0	0.	0.0	0.	14200.
17	0.0	0.	0.0	0.	14200.
18	0.0	0.	0.0	0.	14200.
19	0.0	0.	0.0	0.	14200.
20+	0.0	0.	0.0	0.	14200.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 1.8.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
LOW ALTITUDE 49-STATE
MOTORCYCLES
JANUARY 1, 1985

Model Years	(A) MC Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) MC Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.0	1.000	0.0	0.0	0.	0.0	0.0
1984	0.145	1.000	0.145	0.167	4100.	685.7	0.356
1983	0.138	1.000	0.138	0.159	2800.	445.7	0.232
1982	0.116	1.000	0.116	0.134	2100.	281.0	0.146
1981	0.123	1.000	0.123	0.142	1600.	227.0	0.118
1980	0.114	1.000	0.114	0.131	1200.	157.8	0.082
1979	0.069	1.000	0.069	0.080	800.	63.7	0.033
1978	0.044	1.000	0.044	0.051	600.	30.4	0.016
1977	0.024	1.000	0.024	0.028	400.	11.1	0.006
1976	0.009	1.000	0.009	0.010	200.	2.1	0.001
1975	0.085	1.000	0.085	0.098	200.	19.6	0.010
1974	0.0	1.000	0.0	0.0	200.	0.0	0.0
1973	0.0	1.000	0.0	0.0	0.	0.0	0.0
1972	0.0	1.000	0.0	0.0	0.	0.0	0.0
1971	0.0	1.000	0.0	0.0	0.	0.0	0.0
1970	0.0	1.000	0.0	0.0	0.	0.0	0.0
1969	0.0	1.000	0.0	0.0	0.	0.0	0.0
1968	0.0	1.000	0.0	0.0	0.	0.0	0.0
1967	0.0	1.000	0.0	0.0	0.	0.0	0.0
1966-	0.0	1.000	0.0	0.0	0.	0.0	0.0
		DAF:	0.867		TFNORM:	1924.0	

WHERE:
- A = January 1 registration mix from Table 1.8.4.
- B = Fleet sales fractions will always equal 1.000 for MCs.
- D = Sales weighted fleet mileage accumulation rate from Table 1.8.4, adjusted to January 1.
- D(1) = 0
- D(MYI) = Annual Miles(MYI-1) , MYI=2,...,20+

DATE: MARCH 31, 1981

TABLE 1.8.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
MOTORCYCLES

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*S^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5, \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1978	0.231026E+01	-0.289572E+00	0.152990E-01	-0.446689E-03	0.648183E-05	-0.363456E-07
1978-1979	0.240873E+01	-0.308187E+00	0.168168E-01	-0.506843E-03	0.753855E-05	-0.431596E-07
1980+	0.225223E+01	-0.287778E+00	0.156820E-01	-0.473179E-03	0.707954E-05	-0.408456E-07
CO :						
PRE-1978	0.233989E+01	-0.296978E+00	0.160071E-01	-0.477396E-03	0.706752E-05	-0.403978E-07
1978-1979	0.277804E+01	-0.319130E+00	0.153183E-01	-0.422327E-03	0.584948E-05	-0.314969E-07
1980+	0.270743E+01	-0.331038E+00	0.176179E-01	-0.538583E-03	0.817402E-05	-0.477803E-07
NOx:						
PRE-1978	0.168635E+01	-0.118303E+00	0.654975E-02	-0.137139E-03	0.100849E-05	0.0
1978+	0.128169E+01	-0.804874E-01	0.535735E-02	-0.118891E-03	0.901060E-06	0.0

Where:
- s = average speed (mph)
- sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w. [1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 1.8.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
LOW ALTITUDE 49-STATE
MOTORCYCLES

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1978	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1978-1979	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1980+	-0.21255E-01	-0.10888E-01	-0.52755E-03	-0.47925E-03	0.93659E-03	0.76666E-02
CO	Pre-1978	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1978-1979	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1980+	-0.20843E-01	-0.21165E-01	-0.59951E-02	0.23603E-01	0.18253E-02	0.28483E-01
NOx	Pre-1978	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1978+	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 1.8.7B.

The coefficients are zero in the temperature range of 68 F thrcugh 86 F.

DATE: MARCH 31, 1981

TABLE 1.8.7B

NORMALIZED BAG FRACTIONS FOR
LOW ALTITUDE 49-STATE
MOTORCYCLES

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	BO	DO
HC	Pre-1978	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1978-1979	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1980+	1.345	0.178	0.919	0.118	0.894	0.093	1.000	0.124
CO	Pre-1978	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1978-1979	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1980+	1.553	0.109	0.933	0.079	0.711	0.038	1.000	0.074
NOx	Pre-1978	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1978+	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = BO + DO*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.1.1A

EXHAUST EMISSION RATES FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1966	9.58	0.18	10.48
	1966-1967	4.84	0.25	6.09
	1968-1969	4.31	0.25	5.56
	1970-1971	3.70	0.37	5.55
	1972-1974	3.02	0.17	3.87
	1975-1976	0.55	0.35	2.30
	1977-1979	0.32	0.21	1.37
	1980	0.41	0.17	1.26
	1981-1982	0.46	0.16	1.26
	1983+	0.46	0.16	1.26
CO	Pre-1966	79.31	2.25	90.56
	1966-1967	57.41	2.55	70.16
	1968-1969	53.75	2.55	66.50
	1970-1971	46.43	3.13	62.08
	1972-1974	33.29	2.44	45.49
	1975-1976	8.39	2.78	22.29
	1977-1979	4.68	2.22	15.78
	1980	7.04	2.14	17.74
	1981-1982	7.29	2.65	20.54
	1983+	7.29	2.65	20.54
NOx	Pre-1966	2.93	0.0	2.93
	1966-1970	4.06	0.0	4.06
	1971-1973	3.40	0.04	3.60
	1974	2.20	0.04	2.40
	1975-1976	2.03	0.06	2.33
	1977-1979	1.51	0.07	1.86
	1980	0.84	0.14	1.54
	1981-1982	0.56	0.11	1.11
	1983+	0.37	0.08	0.77

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.2.1, for the emission standards.

DATE: MARCH 31, 1981

TABLE 2.1.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1961	14.67	3.05	26.08	31.10	4.10	6.38
1961-1963	14.67	3.05	26.08	31.10	0.80	3.08
1964-1969	14.67	3.05	26.08	31.10	0.0	2.28
1970-1971	10.91	3.05	16.28	31.10	0.0	1.59
1972-1977	8.27	3.05	8.98	31.10	0.0	1.10
1978-1979	1.56	3.05	2.65	31.10	0.0	0.24
1980+	0.63	3.05	1.07	31.10	0.0	0.10

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 2.1.2A

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	12.9	1952	12.9	1953	12.9	1954	12.9	1955	12.9	1956	12.9	1957	12.9	1958	12.9	1959	12.9	1960	12.9	1961	12.9	1962	12.9
1952	12.8	1953	12.8	1954	12.8	1955	12.8	1956	12.8	1957	12.8	1958	12.8	1959	12.8	1960	12.8	1961	12.8	1962	12.8	1963	12.8
1953	12.7	1954	12.7	1955	12.7	1956	12.7	1957	12.7	1958	12.7	1959	12.7	1960	12.7	1961	12.7	1962	12.7	1963	12.7	1964	12.7
1954	12.6	1955	12.6	1956	12.6	1957	12.6	1958	12.6	1959	12.6	1960	12.6	1961	12.6	1962	12.6	1963	12.6	1964	12.6	1965	12.6
1955	12.4	1956	12.4	1957	12.4	1958	12.4	1959	12.4	1960	12.4	1961	12.4	1962	12.4	1963	12.4	1964	12.4	1965	12.4	1966	8.8
1956	12.3	1957	12.3	1958	12.3	1959	12.3	1960	12.3	1961	12.3	1962	12.3	1963	12.3	1964	12.3	1965	12.3	1966	8.6	1967	8.6
1957	12.2	1958	12.2	1959	12.2	1960	12.2	1961	12.2	1962	12.2	1963	12.2	1964	12.2	1965	12.2	1966	8.4	1967	8.4	1968	7.9
1958	12.0	1959	12.0	1960	12.0	1961	12.0	1962	12.0	1963	12.0	1964	12.0	1965	12.0	1966	8.2	1967	8.2	1968	7.7	1969	7.7
1959	11.9	1960	11.9	1961	11.9	1962	11.9	1963	11.9	1964	11.9	1965	11.9	1966	8.0	1967	8.0	1968	7.5	1969	7.5	1970	8.4
1960	11.7	1961	11.7	1962	11.7	1963	11.7	1964	11.7	1965	11.7	1966	7.8	1967	7.8	1968	7.3	1969	7.3	1970	8.1	1971	8.1
1961	11.5	1962	11.5	1963	11.5	1964	11.5	1965	11.5	1966	7.5	1967	7.5	1968	7.0	1969	7.0	1970	7.7	1971	7.7	1972	4.9
1962	11.3	1963	11.3	1964	11.3	1965	11.3	1966	7.3	1967	7.3	1968	6.8	1969	6.8	1970	7.3	1971	7.3	1972	4.7	1973	4.7
1963	11.1	1964	11.1	1965	11.1	1966	7.0	1967	7.0	1968	6.5	1969	6.5	1970	6.9	1971	6.9	1972	4.5	1973	4.5	1974	4.5
1964	10.9	1965	10.9	1966	6.7	1967	6.7	1968	6.2	1969	6.2	1970	6.5	1971	6.5	1972	4.3	1973	4.3	1974	4.3	1975	3.2
1965	10.7	1966	6.4	1967	6.4	1968	5.9	1969	5.9	1970	6.1	1971	6.1	1972	4.1	1973	4.1	1974	4.1	1975	2.8	1976	2.8
1966	6.1	1967	6.1	1968	5.6	1969	5.6	1970	5.6	1971	5.6	1972	3.9	1973	3.9	1974	3.9	1975	2.3	1976	2.3	1977	1.4
1967	5.8	1968	5.3	1969	5.3	1970	5.1	1971	5.1	1972	3.7	1973	3.7	1974	3.7	1975	1.9	1976	1.9	1977	1.1	1978	1.1
1968	4.9	1969	4.9	1970	4.6	1971	4.6	1972	3.4	1973	3.4	1974	3.4	1975	1.4	1976	1.4	1977	0.8	1978	0.8	1979	0.8
1969	4.6	1970	4.1	1971	4.1	1972	3.2	1973	3.2	1974	3.2	1975	0.9	1976	0.9	1977	0.5	1978	0.5	1979	0.5	1980	0.6
1970	3.8	1971	3.8	1972	3.1	1973	3.1	1974	3.1	1975	0.6	1976	0.6	1977	0.4	1978	0.4	1979	0.4	1980	0.4	1981	0.5

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	12.9	1964	12.9	1965	12.9	1966	9.4	1967	9.4	1968	8.9	1969	8.9	1970	10.4	1971	10.4	1972	6.1	1973	6.1	1974	6.1
1964	12.8	1965	12.8	1966	9.3	1967	9.3	1968	8.7	1969	8.7	1970	10.2	1971	10.2	1972	6.0	1973	6.0	1974	6.0	1975	6.7
1965	12.7	1966	9.1	1967	9.1	1968	8.6	1969	8.6	1970	10.0	1971	10.0	1972	5.9	1973	5.9	1974	5.9	1975	6.5	1976	6.5
1966	9.0	1967	9.0	1968	8.4	1969	8.4	1970	9.8	1971	9.8	1972	5.8	1973	5.8	1974	5.8	1975	6.3	1976	6.3	1977	3.8
1967	8.8	1968	8.3	1969	8.3	1970	9.6	1971	9.6	1972	5.7	1973	5.7	1974	5.7	1975	6.1	1976	6.1	1977	3.7	1978	3.7
1968	8.1	1969	8.1	1970	9.3	1971	9.3	1972	5.6	1973	5.6	1974	5.6	1975	5.9	1976	5.9	1977	3.5	1978	3.5	1979	3.5
1969	7.9	1970	9.0	1971	9.0	1972	5.5	1973	5.5	1974	5.5	1975	5.6	1976	5.6	1977	3.3	1978	3.3	1979	3.3	1980	2.9
1970	8.7	1971	8.7	1972	5.3	1973	5.3	1974	5.3	1975	5.3	1976	5.3	1977	3.2	1978	3.2	1979	3.2	1980	2.7	1981	2.6
1971	8.4	1972	5.2	1973	5.2	1974	5.2	1975	5.0	1976	5.0	1977	3.0	1978	3.0	1979	3.0	1980	2.6	1981	2.5	1982	2.5
1972	5.0	1973	5.0	1974	5.0	1975	4.7	1976	4.7	1977	2.8	1978	2.8	1979	2.8	1980	2.4	1981	2.3	1982	2.3	1983	2.3
1973	4.9	1974	4.9	1975	4.3	1976	4.3	1977	2.6	1978	2.6	1979	2.6	1980	2.2	1981	2.2	1982	2.2	1983	2.2	1984	2.2
1974	4.7	1975	4.0	1976	4.0	1977	2.4	1978	2.4	1979	2.4	1980	2.1	1981	2.0	1982	2.0	1983	2.0	1984	2.0	1985	2.0
1975	3.6	1976	3.6	1977	2.1	1978	2.1	1979	2.1	1980	1.9	1981	1.9	1982	1.9	1983	1.9	1984	1.9	1985	1.9	1986	1.9
1976	3.2	1977	1.9	1978	1.9	1979	1.9	1980	1.7	1981	1.7	1982	1.7	1983	1.7	1984	1.7	1985	1.7	1986	1.7	1987	1.7
1977	1.7	1978	1.7	1979	1.7	1980	1.5	1981	1.5	1982	1.5	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5
1978	1.4	1979	1.4	1980	1.3	1981	1.3	1982	1.3	1983	1.3	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3
1979	1.1	1980	1.1	1981	1.1	1982	1.1	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1	1988	1.1	1989	1.1	1990	1.1
1980	0.8	1981	0.9	1982	0.9	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9	1991	0.9
1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6
1982	0.5	1983	0.5	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5	1992	0.5	1993	0.5

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.1.4A.

DATE: MARCH 31, 1981

TABLE 2.1.2B

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	120.2	1952	120.2	1953	120.2	1954	120.2	1955	120.2	1956	120.2	1957	120.2	1958	120.2	1959	120.2	1960	120.2	1961	120.2	1962	120.2
1952	119.1	1953	119.1	1954	119.1	1955	119.1	1956	119.1	1957	119.1	1958	119.1	1959	119.1	1960	119.1	1961	119.1	1962	119.1	1963	119.1
1953	117.9	1954	117.9	1955	117.9	1956	117.9	1957	117.9	1958	117.9	1959	117.9	1960	117.9	1961	117.9	1962	117.9	1963	117.9	1964	117.9
1954	116.5	1955	116.5	1956	116.5	1957	116.5	1958	116.5	1959	116.5	1960	116.5	1961	116.5	1962	116.5	1963	116.5	1964	116.5	1965	116.5
1955	115.0	1956	115.0	1957	115.0	1958	115.0	1959	115.0	1960	115.0	1961	115.0	1962	115.0	1963	115.0	1964	115.0	1965	115.0	1966	97.9
1956	113.4	1957	113.4	1958	113.4	1959	113.4	1960	113.4	1961	113.4	1962	113.4	1963	113.4	1964	113.4	1965	113.4	1966	96.1	1967	96.1
1957	111.7	1958	111.7	1959	111.7	1960	111.7	1961	111.7	1962	111.7	1963	111.7	1964	111.7	1965	111.7	1966	94.1	1967	94.1	1968	90.5
1958	109.9	1959	109.9	1960	109.9	1961	109.9	1962	109.9	1963	109.9	1964	109.9	1965	109.9	1966	92.0	1967	92.0	1968	88.4	1969	88.4
1959	107.9	1960	107.9	1961	107.9	1962	107.9	1963	107.9	1964	107.9	1965	107.9	1966	89.8	1967	89.8	1968	86.2	1969	86.2	1970	86.2
1960	105.8	1961	105.8	1962	105.8	1963	105.8	1964	105.8	1965	105.8	1966	87.5	1967	87.5	1968	83.8	1969	83.8	1970	83.3	1971	83.3
1961	103.6	1962	103.6	1963	103.6	1964	103.6	1965	103.6	1966	85.0	1967	85.0	1968	81.3	1969	81.3	1970	80.3	1971	80.3	1972	59.7
1962	101.3	1963	101.3	1964	101.3	1965	101.3	1966	82.4	1967	82.4	1968	78.7	1969	78.7	1970	77.0	1971	77.0	1972	57.2	1973	57.2
1963	98.9	1964	98.9	1965	98.9	1966	79.6	1967	79.6	1968	75.9	1969	75.9	1970	73.7	1971	73.7	1972	54.5	1973	54.5	1974	54.5
1964	96.3	1965	96.3	1966	76.7	1967	76.7	1968	73.0	1969	73.0	1970	70.1	1971	70.1	1972	51.7	1973	51.7	1974	51.7	1975	29.4
1965	93.6	1966	73.7	1967	73.7	1968	70.0	1969	70.0	1970	66.4	1971	66.4	1972	48.8	1973	48.8	1974	48.8	1975	26.1	1976	26.1
1966	70.5	1967	70.5	1968	66.8	1969	66.8	1970	62.5	1971	62.5	1972	45.8	1973	45.8	1974	45.8	1975	22.6	1976	22.6	1977	16.1
1967	67.2	1968	63.5	1969	63.5	1970	58.4	1971	58.4	1972	42.6	1973	42.6	1974	42.6	1975	19.0	1976	19.0	1977	13.2	1978	13.2
1968	60.1	1969	60.1	1970	54.2	1971	54.2	1972	39.3	1973	39.3	1974	39.3	1975	15.3	1976	15.3	1977	10.2	1978	10.2	1979	10.2
1969	56.5	1970	49.8	1971	49.8	1972	35.9	1973	35.9	1974	35.9	1975	11.4	1976	11.4	1977	7.1	1978	7.1	1979	7.1	1980	9.3
1970	47.0	1971	47.0	1972	33.7	1973	33.7	1974	33.7	1975	8.9	1976	8.9	1977	5.1	1978	5.1	1979	5.1	1980	7.4	1981	7.8

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	120.2	1964	120.2	1965	120.2	1966	103.8	1967	103.8	1968	100.1	1969	100.1	1970	103.4	1971	103.4	1972	77.7	1973	77.7	1974	77.7
1964	119.1	1965	119.1	1966	102.5	1967	102.5	1968	98.8	1969	98.8	1970	101.8	1971	101.8	1972	76.4	1973	76.4	1974	76.4	1975	57.5
1965	117.9	1966	101.1	1967	101.1	1968	97.4	1969	97.4	1970	100.0	1971	100.0	1972	75.1	1973	75.1	1974	75.1	1975	56.0	1976	56.0
1966	99.6	1967	99.6	1968	95.9	1969	95.9	1970	98.2	1971	98.2	1972	73.6	1973	73.6	1974	73.6	1975	54.3	1976	54.3	1977	41.4
1967	97.9	1968	94.2	1969	94.2	1970	96.1	1971	96.1	1972	72.0	1973	72.0	1974	72.0	1975	52.5	1976	52.5	1977	39.9	1978	39.9
1968	92.4	1969	92.4	1970	93.9	1971	93.9	1972	70.3	1973	70.3	1974	70.3	1975	50.5	1976	50.5	1977	38.3	1978	38.3	1979	38.3
1969	90.5	1970	91.5	1971	91.5	1972	68.4	1973	68.4	1974	68.4	1975	48.4	1976	48.4	1977	36.6	1978	36.6	1979	36.6	1980	37.9
1970	88.9	1971	88.9	1972	66.4	1973	66.4	1974	66.4	1975	46.2	1976	46.2	1977	34.8	1978	34.8	1979	34.8	1980	36.1	1981	43.3
1971	86.2	1972	64.3	1973	64.3	1974	64.3	1975	43.7	1976	43.7	1977	32.9	1978	32.9	1979	32.9	1980	34.2	1981	41.0	1982	41.0
1972	62.1	1973	62.1	1974	62.1	1975	41.2	1976	41.2	1977	30.9	1978	30.9	1979	30.9	1980	32.3	1981	38.5	1982	38.5	1983	38.5
1973	59.7	1974	59.7	1975	38.5	1976	38.5	1977	28.7	1978	28 7	1979	28.7	1980	30.2	1981	35.9	1982	35.9	1983	35.9	1984	35.9
1974	57.2	1975	35.6	1976	35.6	1977	26.4	1978	26.4	1979	26.4	1980	28.0	1981	33.2	1982	33.2	1983	33.2	1984	33.2	1985	33.2
1975	32.6	1976	32.6	1977	24.0	1978	24.0	1979	24.0	1980	25.7	1981	30.3	1982	30.3	1983	30.3	1984	30.3	1985	30.3	1986	30.3
1976	29.4	1977	21.5	1978	21.5	1979	21.5	1980	23.2	1981	27.3	1982	27.3	1983	27.3	1984	27.3	1985	27.3	1986	27.3	1987	27.3
1977	18.8	1978	18.8	1979	18.8	1980	20.7	1981	24.2	1982	24.2	1983	24.2	1984	24.2	1985	24.2	1986	24.2	1987	24.2	1988	24.2
1978	16.1	1979	16.1	1980	18.0	1981	20.9	1982	20.9	1983	20.9	1984	20.9	1985	20.9	1986	20.9	1987	20.9	1988	20.9	1989	20.9
1979	13.2	1980	15.2	1981	17.4	1982	17.4	1983	17.4	1984	17.4	1985	17.4	1986	17.4	1987	17.4	1988	17.4	1989	17.4	1990	17.4
1980	12.3	1981	13.9	1982	13.9	1983	13.9	1984	13.9	1985	13.9	1986	13.9	1987	13.9	1988	13.9	1989	13.9	1990	13.9	1991	13.9
1981	10.1	1982	10.1	1983	10.1	1984	10.1	1985	10.1	1986	10.1	1987	10.1	1988	10.1	1989	10.1	1990	10.1	1991	10.1	1992	10.1
1982	7.8	1983	7.8	1984	7.8	1985	7.8	1986	7.8	1987	7.8	1988	7.8	1989	7.8	1990	7.8	1991	7.8	1992	7.8	1993	7.8

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.1.4A.

DATE: MARCH 31, 1981

TABLE 2.1.2C

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	2.9	1952	2.9	1953	2.9	1954	2.9	1955	2.9	1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9
1952	2.9	1953	2.9	1954	2.9	1955	2.9	1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9
1953	2.9	1954	2.9	1955	2.9	1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9
1954	2.9	1955	2.9	1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9
1955	2.9	1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1
1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1
1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1
1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1
1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1
1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.9
1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.8	1972	3.8
1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.8	1972	3.8	1973	3.8
1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.7	1972	3.7	1973	3.7	1974	2.5
1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.7	1972	3.7	1973	3.7	1974	2.5	1975	2.5
1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.7	1972	3.7	1973	3.7	1974	2.5	1975	2.4	1976	2.4
1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.6	1972	3.6	1973	3.6	1974	2.4	1975	2.3	1976	2.3	1977	1.9
1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.6	1972	3.6	1973	3.6	1974	2.4	1975	2.3	1976	2.3	1977	1.8	1978	1.8
1968	4.1	1969	4.1	1970	4.1	1971	3.5	1972	3.5	1973	3.5	1974	2.3	1975	2.2	1976	2.2	1977	1.7	1978	1.7	1979	1.7
1969	4.1	1970	4.1	1971	3.4	1972	3.4	1973	3.4	1974	2.2	1975	2.1	1976	2.1	1977	1.6	1978	1.6	1979	1.6	1980	1.0
1970	4.1	1971	3.4	1972	3.4	1973	3.4	1974	2.2	1975	2.0	1976	2.0	1977	1.5	1978	1.5	1979	1.5	1980	0.9	1981	0.6

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	4.1	1972	4.1	1973	4.1	1974	2.9
1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	4.1	1972	4.1	1973	4.1	1974	2.9	1975	3.1
1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	4.1	1972	4.1	1973	4.1	1974	2.9	1975	3.1	1976	3.1
1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	4.1	1972	4.1	1973	4.1	1974	2.9	1975	3.0	1976	3.0	1977	2.7
1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	4.0	1972	4.0	1973	4.0	1974	2.8	1975	3.0	1976	3.0	1977	2.6	1978	2.6
1968	4.1	1969	4.1	1970	4.1	1971	4.0	1972	4.0	1973	4.0	1974	2.8	1975	2.9	1976	2.9	1977	2.6	1978	2.6	1979	2.6
1969	4.1	1970	4.1	1971	4.0	1972	4.0	1973	4.0	1974	2.8	1975	2.9	1976	2.9	1977	2.5	1978	2.5	1979	2.5	1980	2.9
1970	4.1	1971	3.9	1972	3.9	1973	3.9	1974	2.7	1975	2.8	1976	2.8	1977	2.5	1978	2.5	1979	2.5	1980	2.7	1981	2.1
1971	3.9	1972	3.9	1973	3.9	1974	2.7	1975	2.8	1976	2.8	1977	2.4	1978	2.4	1979	2.4	1980	2.6	1981	2.0	1982	2.0
1972	3.9	1973	3.9	1974	2.7	1975	2.7	1976	2.7	1977	2.3	1978	2.3	1979	2.3	1980	2.5	1981	1.9	1982	1.9	1983	1.3
1973	3.8	1974	2.6	1975	2.7	1976	2.7	1977	2.3	1978	2.3	1979	2.3	1980	2.4	1981	1.7	1982	1.7	1983	1.2	1984	1.2
1974	2.6	1975	2.6	1976	2.6	1977	2.2	1978	2.2	1979	2.2	1980	2.2	1981	1.6	1982	1.6	1983	1.2	1984	1.2	1985	1.2
1975	2.6	1976	2.6	1977	2.1	1978	2.1	1979	2.1	1980	2.1	1981	1.5	1982	1.5	1983	1.1	1984	1.1	1985	1.1	1986	1.1
1976	2.5	1977	2.0	1978	2.0	1979	2.0	1980	1.9	1981	1.4	1982	1.4	1983	1.0	1984	1.0	1985	1.0	1986	1.0	1987	1.0
1977	2.0	1978	2.0	1979	2.0	1980	1.7	1981	1.3	1982	1.3	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9
1978	1.9	1979	1.9	1980	1.6	1981	1.1	1982	1.1	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8
1979	1.8	1980	1.4	1981	1.0	1982	1.0	1983	0.7	1984	0.7	1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7
1980	1.2	1981	0.8	1982	0.8	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6
1981	0.7	1982	0.7	1983	0.5	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5	1992	0.5
1982	0.6	1983	0.4	1984	0.4	1985	0.4	1986	0.4	1987	0.4	1988	0.4	1989	0.4	1990	0.4	1991	0.4	1992	0.4	1993	0.4

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.1.4A.

DATE: MARCH 31, 1981

TABLE 2.1.3

IDLE EMISSION RATES FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1966	1.89	0.04
	1966-1967	0.93	0.05
	1968-1969	0.70	0.04
	1970-1971	0.60	0.06
	1972-1974	0.53	0.03
	1975-1976	0.06	0.04
	1977-1979	0.03	0.02
	1980	0.04	0.02
	1981-1982	0.05	0.02
	1983+	0.05	0.02
CO	Pre-1966	18.05	0.51
	1966-1967	10.61	0.47
	1968-1969	12.83	0.61
	1970-1971	10.40	0.70
	1972-1974	7.05	0.52
	1975-1976	0.51	0.17
	1977-1979	0.28	0.13
	1980	0.43	0.13
	1981-1982	0.44	0.16
	1983+	0.44	0.16
NOx	Pre-1966	0.05	0.0
	1966-1970	0.09	0.0
	1971-1973	0.07	0.0
	1974	0.07	0.0
	1975-1976	0.09	0.0
	1977-1979	0.07	0.0
	1980	0.04	0.01
	1981-1982	0.02	0.0
	1983+	0.02	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.1.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.072	14400.	0.024	14400.	1800.
2	0.101	13900.	0.101	14275.	10784.
3	0.092	13400.	0.092	13775.	24809.
4	0.071	12800.	0.071	13250.	38331.
5	0.092	12300.	0.092	12675.	51284.
6	0.103	11800.	0.103	12175.	63709.
7	0.089	11200.	0.089	11650.	75631.
8	0.071	10700.	0.071	11075.	86984.
9	0.066	10200.	0.066	10575.	97809.
10	0.059	9600.	0.059	10050.	108131.
11	0.048	9100.	0.048	9475.	117884.
12	0.035	8600.	0.035	8975.	127109.
13	0.030	8000.	0.030	8450.	135831.
14	0.023	7500.	0.023	7875.	143984.
15	0.015	7000.	0.015	7375.	151609.
16	0.010	6400.	0.010	6850.	158731.
17	0.005	5900.	0.005	6275.	165284.
18	0.003	5400.	0.003	5775.	171309.
19	0.002	4900.	0.002	5275.	176833.
20+	0.015	4300.	0.015	4750.	181855.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 2.1.4B

FLEET SALES FRACTION* FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	Sales Fraction
Pre-1975	1.000
1975	0.998
1976	0.997
1977	0.995
1978	0.991
1979	0.972
1980	0.966
1981	0.953
1982	0.925
1983	0.911
1984	0.905
1985	0.886
1986	0.862
1987	0.835
1988	0.824
1989	0.813
1990	0.803
1991+	0.800

* The estimated fraction of the light duty vehicle model year fleet which is gasoline powered.

DATE: MARCH 31, 1981

TABLE 2.1.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) LDV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDGV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.024	0.886	0.021	0.023	14400.	335.3	0.029
1984	0.101	0.905	0.091	0.100	14275.	1425.3	0.124
1983	0.092	0.911	0.084	0.092	13775.	1263.7	0.110
1982	0.071	0.925	0.065	0.072	13250.	948.8	0.082
1981	0.092	0.953	0.087	0.095	12675.	1209.8	0.105
1980	0.103	0.966	0.099	0.108	12175.	1319.4	0.115
1979	0.089	0.972	0.086	0.094	11650.	1099.5	0.096
1978	0.071	0.991	0.071	0.077	11075.	854.4	0.074
1977	0.066	0.995	0.066	0.072	10575.	758.2	0.066
1976	0.059	0.997	0.059	0.064	10050.	647.5	0.056
1975	0.048	0.998	0.048	0.052	9475.	494.2	0.043
1974	0.035	1.000	0.035	0.038	8975.	342.5	0.030
1973	0.030	1.000	0.030	0.033	8450.	277.2	0.024
1972	0.023	1.000	0.023	0.025	7875.	198.0	0.017
1971	0.015	1.000	0.015	0.016	7375.	121.0	0.011
1970	0.010	1.000	0.010	0.011	6850.	74.1	0.006
1969	0.005	1.000	0.005	0.006	6275.	37.7	0.003
1968	0.003	1.000	0.003	0.003	5775.	15.8	0.001
1967	0.002	1.000	0.002	0.002	5275.	9.8	0.001
1966-	0.015	1.000	0.015	0.016	4750.	75.8	0.007
		DAF:	0.915		TFNORM:	11507.9	

WHERE:

A = January 1 registration mix from Table 2.1.4A.
B = Fleet sales fractions from Table 2.1.4B.
D = Sales weighted fleet mileage accumulation rate from Table 2.1.4A, adjusted to January 1.
D(1) = Annual Miles(1)
D(MYI)= .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 2.1.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*S^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5, \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1966	0.231026E+01	-0.289572E+00	0.152990E-01	-0.446689E-03	0.648183E-05	-0.363456E-07
1966-1967	0.216556E+01	-0.269992E+00	0.144221E-01	-0.433638E-03	0.650735E-05	-0.378100E-07
1968	0.239726E+01	-0.299985E+00	0.161351E-01	-0.487491E-03	0.729093E-05	-0.419769E-07
1969	0.240873E+01	-0.308187E+00	0.168168E-01	-0.506843E-03	0.753855E-05	-0.431596E-07
1970	0.223217E+01	-0.284985E+00	0.153833E-01	-0.456738E-03	0.673486E-05	-0.383798E-07
1971	0.225223E+01	-0.287778E+00	0.156820E-01	-0.473179E-03	0.707954E-05	-0.408456E-07
1972	0.207346E+01	-0.289353E+00	0.173042E-01	-0.554707E-03	0.864204E-05	-0.513107E-07
1973-1974	0.211940E+01	-0.298632E+00	0.184473E-01	-0.616544E-03	0.992062E-05	-0.604020E-07
1975+	0.239540E+01	-0.335781E+00	0.211609E-01	-0.731550E-03	0.120715E-04	-0.748566E-07
CO :						
PRE-1966	0.233989E+01	-0.296978E+00	0.160071E-01	-0.477396E-03	0.706752E-05	-0.403978E-07
1966-1967	0.244154E+01	-0.291473E+00	0.142949E-01	-0.387852E-03	0.529781E-05	-0.282441E-07
1968	0.246551E+01	-0.305023E+00	0.160497E-01	-0.473969E-03	0.699075E-05	-0.399758E-07
1969	0.277804E+01	-0.319130E+00	0.153183E-01	-0.422327E-03	0.584948E-05	-0.314969E-07
1970	0.278899E+01	-0.327107E+00	0.162943E-01	-0.467573E-03	0.671906E-05	-0.374401E-07
1971	0.270743E+01	-0.331038E+00	0.176179E-01	-0.538583E-03	0.817402E-05	-0.477803E-07
1972	0.257522E+01	-0.328888E+00	0.189747E-01	-0.628263E-03	0.100924E-04	-0.612727E-07
1973-1974	0.254557E+01	-0.362954E+00	0.232775E-01	-0.815039E-03	0.136231E-04	-0.855909E-07
1975+	0.248747E+01	-0.391562E+00	0.270721E-01	-0.976178E-03	0.165270E-04	-0.104317E-06
NOx:						
PRE-1966	0.168635E+01	-0.118303E+00	0.654975E-02	-0.137139E-03	0.100849E-05	0.0
1966-1967	0.112646E+01	-0.393405E-01	0.268637E-02	-0.608024E-04	0.477286E-06	0.0
1968	0.122677E+01	-0.444978E-01	0.262476E-02	-0.567150E-04	0.434293E-06	0.0
1969	0.101743E+01	-0.118958E-01	0.914365E-03	-0.215740E-04	0.182300E-06	0.0
1970	0.987600E+00	-0.195674E-01	0.169645E-02	-0.404000E-04	0.328001E-06	0.0
1971	0.115917E+01	-0.444536E-01	0.296425E-02	-0.668990E-04	0.522365E-06	0.0
1972	0.245969E+00	0.841954E-01	-0.340841E-02	0.629880E-04	-0.413975E-06	0.0
1973-1974	0.704805E+00	0.381527E-01	-0.173907E-02	0.326140E-04	-0.203847E-06	0.0
1975+	0.942131E+00	-0.423240E-01	0.386253E-02	-0.939853E-04	0.753883E-06	0.0

Where:
- s = average speed (mph)
- sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w.
  [1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 2.1.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1966	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1966-1969	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1970-1971	-0.21255E-01	-0.10888E-01	-0.52755E-03	-0.47925E-03	0.93659E-03	0.76666E-02
	1972-1974	-0.21427E-01	-0.66107E-02	-0.39442E-03	0.26288E-02	0.49731E-02	0.12320E-01
	1975-1976	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1977-1979	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1980+	-0.25217E-01	0.11959E-01	-0.56153E-02	-0.12627E-04	-0.36228E-02	0.78765E-02
CO	Pre-1966	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1966-1969	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1970-1971	-0.20843E-01	-0.21165E-01	-0.59951E-02	0.23603E-01	0.18253E-02	0.28483E-01
	1972-1974	-0.19091E-01	-0.13146E-01	-0.42373E-03	0.24717E-01	0.57982E-02	0.25848E-01
	1975-1976	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1977-1979	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1980+	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
NOx	Pre-1966	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1966-1970	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01
	1971-1974	0.38855E-02	-0.18301E-01	-0.24156E-02	-0.10925E-01	-0.21188E-02	-0.18042E-01
	1975-1976	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1977-1979	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1980+	0.15668E-02	-0.34416E-01	0.59496E-03	-0.35871E-01	-0.24888E-02	-0.28830E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 2.1.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

DATE: MARCH 31, 1981

TABLE 2.1.7B

NORMALIZED BAG FRACTIONS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1966	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1966-1969	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1970-1971	1.345	0.178	0.919	0.118	0.894	0.093	1.000	0.124
	1972-1974	1.398	0.060	0.885	0.055	0.919	0.036	1.000	0.051
	1975-1976	2.092	0.248	0.649	0.254	0.846	0.152	1.000	0.225
	1977-1979	2.092	1.339	0.649	1.014	0.846	0.717	1.000	1.000
	1980+	2.961	0.164	0.407	0.598	0.652	0.566	1.000	0.500
CO	Pre-1966	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1966-1969	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1970-1971	1.553	0.109	0.933	0.079	0.711	0.038	1.000	0.074
	1972-1974	1.573	0.054	0.902	0.079	0.755	0.029	1.000	0.060
	1975-1976	2.413	0.143	0.608	0.180	0.681	0.068	1.000	0.142
	1977-1979	2.413	0.657	0.608	0.503	0.681	0.251	1.000	0.466
	1980+	3.184	0.551	0.345	0.589	0.601	0.479	1.000	0.551
NOx	Pre-1966	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1966-1970	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0
	1971-1974	1.262	0.022	0.770	0.004	1.242	0.027	1.000	0.014
	1975-1976	1.393	0.050	0.754	0.052	1.172	0.079	1.000	0.059
	1977-1979	1.393	0.056	0.754	0.056	1.172	0.085	1.000	0.064
	1980+	1.801	0.169	0.653	0.141	1.059	0.296	1.000	0.189

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.1.8A

AIR CONDITIONING CORRECTION FACTORS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES

* ACCF= U*V*(A + B*(T-75) -1) + 1

Model Years	HC		CO		NOx	
	A	B	A	B	A	B
Pre-1975	0.1023E+01	0.3344E-02	0.1202E+01	0.1808E-02	0.1299E+01	0.5643E-04
1975+	0.1000E+01	0.3512E-02	0.1130E+01	0.1528E-02	0.1221E+01	0.4262E-03

*WHERE:

ACCF = Air Conditioning Correction Factor
V = Fraction of vehicles which are equipped with AC given in Table 2.1.8B
U = Fraction of vehicles with AC that are using it = (DI-DILO)/(DIHI-DI), 0<=U<=1
DI = Discomfort index = (DB+WB)*.4+15
DILO = The highest discomfort index where no AC is used
DIHI = The lowest discomfort index where all vehicles with AC use it
DB = Dry bulb temperature (Fahrenheit)
WB = Wet bulb temperature (Fahrenheit)
T = Ambient temperature (Fahrenheit)

TABLE 2.1.8B

ESTIMATED FRACTION OF
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES
EQUIPPED WITH AIR CONDITIONING

Model Years	Fraction Equipped With Air Conditioning
Pre-1962	0.07
1962-1964	0.14
1965-1966	0.24
1967-1968	0.37
1969-1971	0.51
1972-1976	0.61
1977+	0.72

DATE: MARCH 31, 1981

TABLE 2.1.9

EXTRA LOAD CORRECTION FACTORS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES

* XLCF = (XLC-1)*U + 1

Model Years	Coefficients (XLC) HC	CO	NOx
Pre-1966	1.0786	1.2765	0.9535
1966-1969	1.0495	1.1384	1.0313
1970	1.0852	1.2478	1.0313
1971	1.0852	1.2478	1.0753
1972-1974	1.0556	1.1347	1.0753
1975+	1.0455	1.3058	1.0719

* WHERE:
XLCF = Extra load correction factor
U = Fraction of VMT with an extra load
XLC = Correction factor coefficient

TABLE 2.1.10

TRAILER TOWING CORRECTION FACTORS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED VEHICLES

* TTCF = (TTC-1)*U + 1

Model Years	Coefficients (TTC) HC	CO	NOx
Pre-1966	1.2614	1.9327	1.1184
1966-1969	1.2762	1.8940	1.1384
1970	1.4598	2.4753	1.1384
1971	1.4598	2.4753	1.2170
1972-1974	1.7288	2.1414	1.2170
1975+	1.5909	3.9722	1.3875

* WHERE:
TTCF = Trailer towing correction factor
U = Fraction of VMT towing a trailer
TTC = Correction factor coefficient

DATE: MARCH 31, 1981

TABLE 2.2.1A

EXHAUST EMISSION RATES FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS 1

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1966	9.58	0.18	10.48
	1966-1967	4.84	0.25	6.09
	1968-1969	4.31	0.25	5.56
	1970-1971	3.70	0.37	5.55
	1972-1974	3.02	0.17	3.87
	1975	1.22	0.35	2.97
	1976-1978	0.55	0.35	2.30
	1979	0.37	0.21	1.42
	1980	0.36	0.21	1.41
	1981-1982	0.48	0.17	1.33
	1983+	0.55	0.16	1.35
CO	Pre-1966	79.31	2.25	90.56
	1966-1967	57.41	2.55	70.16
	1968-1969	53.75	2.55	66.50
	1970-1971	46.43	3.13	62.08
	1972-1974	33.29	2.44	45.49
	1975	18.64	2.78	32.54
	1976-1978	15.85	2.78	29.75
	1979-1980	4.68	2.22	15.78
	1981-1982	7.04	2.14	17.74
	1983+	8.46	2.63	21.61
NOx	Pre-1966	2.93	0.0	2.93
	1966-1970	4.06	0.0	4.06
	1971-1973	3.40	0.04	3.60
	1974	2.20	0.04	2.40
	1975-1978	2.03	0.06	2.33
	1979-1980	1.85	0.07	2.20
	1981-1982	1.13	0.14	1.83
	1983+	0.62	0.13	1.27

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.2.2, for the emission standards.

DATE: MARCH 31, 1981

TABLE 2.2.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1961	14.67	3.05	26.08	26.30	4.10	6.79
1961-1963	14.67	3.05	26.08	26.30	0.80	3.49
1964-1969	14.67	3.05	26.08	26.30	0.0	2.69
1970-1971	10.91	3.05	16.28	26.30	0.0	1.88
1972-1977	8.27	3.05	8.98	26.30	0.0	1.30
1978-1979	1.56	3.05	2.65	26.30	0.0	0.28
1980+	0.63	3.05	1.07	26.30	0.0	0.11

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 2.2.2A

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	12.3	1952	12.3	1953	12.3	1954	12.3	1955	12.3	1956	12.3	1957	12.3	1958	12.3	1959	12.3	1960	12.3	1961	12.3	1962	12.3
1952	12.2	1953	12.2	1954	12.2	1955	12.2	1956	12.2	1957	12.2	1958	12.2	1959	12.2	1960	12.2	1961	12.2	1962	12.2	1963	12.2
1953	12.1	1954	12.1	1955	12.1	1956	12.1	1957	12.1	1958	12.1	1959	12.1	1960	12.1	1961	12.1	1962	12.1	1963	12.1	1964	12.1
1954	12.0	1955	12.0	1956	12.0	1957	12.0	1958	12.0	1959	12.0	1960	12.0	1961	12.0	1962	12.0	1963	12.0	1964	12.0	1965	12.0
1955	12.0	1956	12.0	1957	12.0	1958	12.0	1959	12.0	1960	12.0	1961	12.0	1962	12.0	1963	12.0	1964	12.0	1965	12.0	1966	8.1
1956	11.9	1957	11.9	1958	11.9	1959	11.9	1960	11.9	1961	11.9	1962	11.9	1963	11.9	1964	11.9	1965	11.9	1966	8.0	1967	8.0
1957	11.8	1958	11.8	1959	11.8	1960	11.8	1961	11.8	1962	11.8	1963	11.8	1964	11.8	1965	11.8	1966	7.9	1967	7.9	1968	7.3
1958	11.7	1959	11.7	1960	11.7	1961	11.7	1962	11.7	1963	11.7	1964	11.7	1965	11.7	1966	7.7	1967	7.7	1968	7.2	1969	7.2
1959	11.5	1960	11.5	1961	11.5	1962	11.5	1963	11.5	1964	11.5	1965	11.5	1966	7.6	1967	7.6	1968	7.0	1969	7.0	1970	7.7
1960	11.4	1961	11.4	1962	11.4	1963	11.4	1964	11.4	1965	11.4	1966	7.4	1967	7.4	1968	6.9	1969	6.9	1970	7.5	1971	7.5
1961	11.3	1962	11.3	1963	11.3	1964	11.3	1965	11.3	1966	7.2	1967	7.2	1968	6.7	1969	6.7	1970	7.2	1971	7.2	1972	4.6
1962	11.2	1963	11.2	1964	11.2	1965	11.2	1966	7.0	1967	7.0	1968	6.5	1969	6.5	1970	6.9	1971	6.9	1972	4.5	1973	4.5
1963	11.0	1964	11.0	1965	11.0	1966	6.8	1967	6.8	1968	6.3	1969	6.3	1970	6.6	1971	6.6	1972	4.4	1973	4.4	1974	4.4
1964	10.8	1965	10.8	1966	6.6	1967	6.6	1968	6.1	1969	6.1	1970	6.3	1971	6.3	1972	4.2	1973	4.2	1974	4.2	1975	3.7
1965	10.7	1966	6.4	1967	6.4	1968	5.8	1969	5.8	1970	6.0	1971	6.0	1972	4.1	1973	4.1	1974	4.1	1975	3.3	1976	2.7
1966	6.1	1967	6.1	1968	5.6	1969	5.6	1970	5.6	1971	5.6	1972	3.9	1973	3.9	1974	3.9	1975	3.0	1976	2.3	1977	2.3
1967	5.8	1968	5.3	1969	5.3	1970	5.1	1971	5.1	1972	3.7	1973	3.7	1974	3.7	1975	2.6	1976	1.9	1977	1.9	1978	1.9
1968	5.0	1969	5.0	1970	4.7	1971	4.7	1972	3.5	1973	3.5	1974	3.5	1975	2.1	1976	1.5	1977	1.5	1978	1.5	1979	0.9
1969	4.6	1970	4.1	1971	4.1	1972	3.2	1973	3.2	1974	3.2	1975	1.6	1976	1.0	1977	1.0	1978	1.0	1979	0.6	1980	0.6
1970	3.8	1971	3.8	1972	3.1	1973	3.1	1974	3.1	1975	1.3	1976	0.6	1977	0.6	1978	0.6	1979	0.4	1980	0.4	1981	0.5

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	12.3	1964	12.3	1965	12.3	1966	8.6	1967	8.6	1968	8.1	1969	8.1	1970	9.3	1971	9.3	1972	5.6	1973	5.6	1974	5.6
1964	12.2	1965	12.2	1966	8.5	1967	8.5	1968	8.0	1969	8.0	1970	9.1	1971	9.1	1972	5.5	1973	5.5	1974	5.5	1975	6.3
1965	12.1	1966	8.4	1967	8.4	1968	7.9	1969	7.9	1970	8.9	1971	8.9	1972	5.4	1973	5.4	1974	5.4	1975	6.2	1976	5.5
1966	8.3	1967	8.3	1968	7.7	1969	7.7	1970	8.8	1971	8.8	1972	5.3	1973	5.3	1974	5.3	1975	6.0	1976	5.3	1977	5.3
1967	8.1	1968	7.6	1969	7.6	1970	8.6	1971	8.6	1972	5.3	1973	5.3	1974	5.3	1975	5.8	1976	5.2	1977	5.2	1978	5.2
1968	7.5	1969	7.5	1970	8.4	1971	8.4	1972	5.2	1973	5.2	1974	5.2	1975	5.7	1976	5.0	1977	5.0	1978	5.0	1979	3.0
1969	7.3	1970	8.2	1971	8.2	1972	5.1	1973	5.1	1974	5.1	1975	5.5	1976	4.8	1977	4.8	1978	4.8	1979	2.9	1980	2.9
1970	8.0	1971	8.0	1972	5.0	1973	5.0	1974	5.0	1975	5.2	1976	4.6	1977	4.6	1978	4.6	1979	2.8	1980	2.8	1981	2.4
1971	7.7	1972	4.9	1973	4.9	1974	4.9	1975	5.0	1976	4.4	1977	4.4	1978	4.4	1979	2.7	1980	2.6	1981	2.3	1982	2.3
1972	4.8	1973	4.8	1974	4.8	1975	4.8	1976	4.1	1977	4.1	1978	4.1	1979	2.5	1980	2.5	1981	2.2	1982	2.2	1983	2.2
1973	4.6	1974	4.6	1975	4.5	1976	3.9	1977	3.9	1978	3.9	1979	2.4	1980	2.4	1981	2.1	1982	2.1	1983	2.1	1984	2.1
1974	4.5	1975	4.3	1976	3.6	1977	3.6	1978	3.6	1979	2.2	1980	2.2	1981	2.0	1982	2.0	1983	1.9	1984	1.9	1985	1.9
1975	4.0	1976	3.3	1977	3.3	1978	3.3	1979	2.0	1980	2.0	1981	1.8	1982	1.8	1983	1.8	1984	1.8	1985	1.8	1986	1.8
1976	3.0	1977	3.0	1978	3.0	1979	1.8	1980	1.8	1981	1.7	1982	1.7	1983	1.7	1984	1.7	1985	1.7	1986	1.7	1987	1.7
1977	2.7	1978	2.7	1979	1.6	1980	1.6	1981	1.5	1982	1.5	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5
1978	2.3	1979	1.4	1980	1.4	1981	1.3	1982	1.3	1983	1.4	1984	1.4	1985	1.4	1986	1.4	1987	1.4	1988	1.4	1989	1.4
1979	1.2	1980	1.2	1981	1.1	1982	1.1	1983	1.2	1984	1.2	1985	1.2	1986	1.2	1987	1.2	1988	1.2	1989	1.2	1990	1.2
1980	0.9	1981	0.9	1982	0.9	1983	1.0	1984	1.0	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0	1990	1.0	1991	1.0
1981	0.7	1982	0.7	1983	0.7	1984	0.7	1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7	1992	0.7
1982	0.5	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.2.4A.

DATE: MARCH 31, 1981

TABLE 2.2.2B

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	113.2	1952	113.2	1953	113.2	1954	113.2	1955	113.2	1956	113.2	1957	113.2	1958	113.2	1959	113.2	1960	113.2	1961	113.2	1962	113.2
1952	112.2	1953	112.2	1954	112.2	1955	112.2	1956	112.2	1957	112.2	1958	112.2	1959	112.2	1960	112.2	1961	112.2	1962	112.2	1963	112.2
1953	111.2	1954	111.2	1955	111.2	1956	111.2	1957	111.2	1958	111.2	1959	111.2	1960	111.2	1961	111.2	1962	111.2	1963	111.2	1964	111.2
1954	110.1	1955	110.1	1956	110.1	1957	110.1	1958	110.1	1959	110.1	1960	110.1	1961	110.1	1962	110.1	1963	110.1	1964	110.1	1965	110.1
1955	109.0	1956	109.0	1957	109.0	1958	109.0	1959	109.0	1960	109.0	1961	109.0	1962	109.0	1963	109.0	1964	109.0	1965	109.0	1966	91.1
1956	107.8	1957	107.8	1958	107.8	1959	107.8	1960	107.8	1961	107.8	1962	107.8	1963	107.8	1964	107.8	1965	107.8	1966	89.7	1967	89.7
1957	106.6	1958	106.6	1959	106.6	1960	106.6	1961	106.6	1962	106.6	1963	106.6	1964	106.6	1965	106.6	1966	88.3	1967	88.3	1968	84.6
1958	105.2	1959	105.2	1960	105.2	1961	105.2	1962	105.2	1963	105.2	1964	105.2	1965	105.2	1966	86.8	1967	86.8	1968	83.1	1969	83.1
1959	103.8	1960	103.8	1961	103.8	1962	103.8	1963	103.8	1964	103.8	1965	103.8	1966	85.2	1967	85.2	1968	81.5	1969	81.5	1970	80.5
1960	102.3	1961	102.3	1962	102.3	1963	102.3	1964	102.3	1965	102.3	1966	83.5	1967	83.5	1968	79.8	1969	79.8	1970	78.4	1971	78.4
1961	100.7	1962	100.7	1963	100.7	1964	100.7	1965	100.7	1966	81.6	1967	81.6	1968	78.0	1969	78.0	1970	76.2	1971	76.2	1972	56.5
1962	99.0	1963	99.0	1964	99.0	1965	99.0	1966	79.7	1967	79.7	1968	76.0	1969	76.0	1970	73.8	1971	73.8	1972	54.6	1973	54.6
1963	97.1	1964	97.1	1965	97.1	1966	77.6	1967	77.6	1968	74.0	1969	74.0	1970	71.2	1971	71.2	1972	52.6	1973	52.6	1974	52.6
1964	95.2	1965	95.2	1966	75.4	1967	75.4	1968	71.7	1969	71.7	1970	68.5	1971	68.5	1972	50.5	1973	50.5	1974	50.5	1975	38.2
1965	93.0	1966	72.9	1967	72.9	1968	69.3	1969	69.3	1970	65.5	1971	65.5	1972	48.1	1973	48.1	1974	48.1	1975	35.6	1976	32.8
1966	70.3	1967	70.3	1968	66.6	1969	66.6	1970	62.2	1971	62.2	1972	45.6	1973	45.6	1974	45.6	1975	32.7	1976	29.9	1977	29.9
1967	67.3	1968	63.7	1969	63.7	1970	58.6	1971	58.6	1972	42.8	1973	42.8	1974	42.8	1975	29.5	1976	26.7	1977	26.7	1978	26.7
1968	60.4	1969	60.4	1970	54.6	1971	54.6	1972	39.6	1973	39.6	1974	39.6	1975	25.9	1976	23.1	1977	23.1	1978	23.1	1979	10.5
1969	56.7	1970	50.1	1971	50.1	1972	36.1	1973	36.1	1974	36.1	1975	21.9	1976	19.1	1977	19.1	1978	19.1	1979	7.3	1980	7.3
1970	47.0	1971	47.0	1972	33.8	1973	33.8	1974	33.8	1975	19.2	1976	16.4	1977	16.4	1978	16.4	1979	5.1	1980	5.1	1981	7.5

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	113.2	1964	113.2	1965	113.2	1966	95.8	1967	95.8	1968	92.2	1969	92.2	1970	93.6	1971	93.6	1972	70.1	1973	70.1	1974	70.1
1964	112.2	1965	112.2	1966	94.7	1967	94.7	1968	91.1	1969	91.1	1970	92.2	1971	92.2	1972	69.0	1973	69.0	1974	69.0	1975	59.3
1965	111.2	1966	93.6	1967	93.6	1968	89.9	1969	89.9	1970	90.8	1971	90.8	1972	67.9	1973	67.9	1974	67.9	1975	58.1	1976	55.3
1966	92.4	1967	92.1	1968	88.7	1969	88.7	1970	89.3	1971	89.3	1972	66.7	1973	66.7	1974	66.7	1975	56.7	1976	53.9	1977	53.9
1967	91.1	1968	87.4	1969	87.4	1970	87.7	1971	87.7	1972	65.5	1973	65.5	1974	65.5	1975	55.3	1976	52.5	1977	52.5	1978	52.5
1968	86.1	1969	86.1	1970	86.1	1971	86.1	1972	64.2	1973	64.2	1974	64.2	1975	53.9	1976	51.1	1977	51.1	1978	51.1	1979	32.8
1969	84.6	1970	84.3	1971	84.3	1972	62.8	1973	62.8	1974	62.8	1975	52.3	1976	49.5	1977	49.5	1978	49.5	1979	31.6	1980	31.6
1970	82.5	1971	82.5	1972	61.4	1973	61.4	1974	61.4	1975	50.6	1976	47.9	1977	47.9	1978	47.9	1979	30.2	1980	30.2	1981	31.7
1971	80.5	1972	59.8	1973	59.8	1974	59.8	1975	48.9	1976	46.1	1977	46.1	1978	46.1	1979	28.8	1980	28.8	1981	30.3	1982	30.3
1972	58.2	1973	58.2	1974	58.2	1975	47.0	1976	44.2	1977	44.2	1978	44.2	1979	27.4	1980	27.4	1981	28.9	1982	28.9	1983	35.3
1973	56.5	1974	56.5	1975	45.1	1976	42.3	1977	42.3	1978	42.3	1979	25.8	1980	25.8	1981	27.4	1982	27.4	1983	33.4	1984	33.4
1974	54.6	1975	42.9	1976	40.1	1977	40.1	1978	40.1	1979	24.1	1980	24.1	1981	25.7	1982	25.7	1983	31.4	1984	31.4	1985	31.4
1975	40.7	1976	37.9	1977	37.9	1978	37.9	1979	22.3	1980	22.3	1981	24.0	1982	24.0	1983	29.3	1984	29.3	1985	29.3	1986	29.3
1976	35.4	1977	35.4	1978	35.4	1979	20.3	1980	20.3	1981	22.1	1982	22.1	1983	27.0	1984	27.0	1985	27.0	1986	27.0	1987	27.0
1977	32.8	1978	32.8	1979	18.2	1980	18.2	1981	20.1	1982	20.1	1983	24.5	1984	24.5	1985	24.5	1986	24.5	1987	24.5	1988	24.5
1978	29.9	1979	15.9	1980	15.9	1981	17.8	1982	17.8	1983	21.7	1984	21.7	1985	21.7	1986	21.7	1987	21.7	1988	21.7	1989	21.7
1979	13.3	1980	13.3	1981	15.4	1982	15.4	1983	18.7	1984	18.7	1985	18.7	1986	18.7	1987	18.7	1988	18.7	1989	18.7	1990	18.7
1980	10.5	1981	12.6	1982	12.6	1983	15.3	1984	15.3	1985	15.3	1986	15.3	1987	15.3	1988	15.3	1989	15.3	1990	15.3	1991	15.3
1981	9.5	1982	9.5	1983	11.5	1984	11.5	1985	11.5	1986	11.5	1987	11.5	1988	11.5	1989	11.5	1990	11.5	1991	11.5	1992	11.5
1982	7.5	1983	9.0	1984	9.0	1985	9.0	1986	9.0	1987	9.0	1988	9.0	1989	9.0	1990	9.0	1991	9.0	1992	9.0	1993	9.0

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.2.4A.

DATE: MARCH 31, 1981

TABLE 2.2.2C

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	2.9	1952	2.9	1953	2.9	1954	2.9	1955	2.9	1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9
1952	2.9	1953	2.9	1954	2.9	1955	2.9	1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9
1953	2.9	1954	2.9	1955	2.9	1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9
1954	2.9	1955	2.9	1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9
1955	2.9	1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1
1956	2.9	1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1
1957	2.9	1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1
1958	2.9	1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1
1959	2.9	1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1
1960	2.9	1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.8
1961	2.9	1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.8	1972	3.8
1962	2.9	1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.7	1972	3.7	1973	3.7
1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.7	1972	3.7	1973	3.7	1974	2.5
1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.7	1972	3.7	1973	3.7	1974	2.5	1975	2.5
1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.6	1972	3.6	1973	3.6	1974	2.4	1975	2.4	1976	2.4
1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.6	1972	3.6	1973	3.6	1974	2.4	1975	2.3	1976	2.3	1977	2.3
1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.6	1972	3.6	1973	3.6	1974	2.4	1975	2.3	1976	2.3	1977	2.3	1978	2.3
1968	4.1	1969	4.1	1970	4.1	1971	3.5	1972	3.5	1973	3.5	1974	2.3	1975	2.2	1976	2.2	1977	2.2	1978	2.2	1979	2.0
1969	4.1	1970	4.1	1971	3.4	1972	3.4	1973	3.4	1974	2.2	1975	2.1	1976	2.1	1977	2.1	1978	2.1	1979	1.9	1980	1.9
1970	4.1	1971	3.4	1972	3.4	1973	3.4	1974	2.2	1975	2.0	1976	2.0	1977	2.0	1978	2.0	1979	1.9	1980	1.9	1981	1.2

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	2.9	1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	4.0	1972	4.0	1973	4.0	1974	2.8
1964	2.9	1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	4.0	1972	4.0	1973	4.0	1974	2.8	1975	2.9
1965	2.9	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	4.0	1972	4.0	1973	4.0	1974	2.8	1975	2.9	1976	2.9
1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.9	1972	3.9	1973	3.9	1974	2.7	1975	2.9	1976	2.9	1977	2.9
1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	3.9	1972	3.9	1973	3.9	1974	2.7	1975	2.8	1976	2.8	1977	2.8	1978	2.8
1968	4.1	1969	4.1	1970	4.1	1971	3.9	1972	3.9	1973	3.9	1974	2.7	1975	2.8	1976	2.8	1977	2.8	1978	2.8	1979	2.7
1969	4.1	1970	4.1	1971	3.9	1972	3.9	1973	3.9	1974	2.7	1975	2.8	1976	2.8	1977	2.8	1978	2.8	1979	2.7	1980	2.7
1970	4.1	1971	3.9	1972	3.9	1973	3.9	1974	2.7	1975	2.7	1976	2.7	1977	2.7	1978	2.7	1979	2.7	1980	2.7	1981	2.7
1971	3.8	1972	3.8	1973	3.8	1974	2.6	1975	2.7	1976	2.7	1977	2.7	1978	2.7	1979	2.6	1980	2.6	1981	2.7	1982	2.7
1972	3.8	1973	3.8	1974	2.6	1975	2.6	1976	2.6	1977	2.6	1978	2.6	1979	2.6	1980	2.6	1981	2.6	1982	2.6	1983	1.9
1973	3.8	1974	2.6	1975	2.6	1976	2.6	1977	2.6	1978	2.6	1979	2.5	1980	2.5	1981	2.5	1982	2.5	1983	1.9	1984	1.9
1974	2.5	1975	2.6	1976	2.6	1977	2.6	1978	2.6	1979	2.5	1980	2.5	1981	2.4	1982	2.4	1983	1.8	1984	1.8	1985	1.8
1975	2.5	1976	2.5	1977	2.5	1978	2.5	1979	2.4	1980	2.4	1981	2.2	1982	2.2	1983	1.7	1984	1.7	1985	1.7	1986	1.7
1976	2.5	1977	2.5	1978	2.5	1979	2.3	1980	2.3	1981	2.1	1982	2.1	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5
1977	2.4	1978	2.4	1979	2.3	1980	2.3	1981	2.0	1982	2.0	1983	1.4	1984	1.4	1985	1.4	1986	1.4	1987	1.4	1988	1.4
1978	2.3	1979	2.2	1980	2.2	1981	1.8	1982	1.8	1983	1.3	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3
1979	2.1	1980	2.1	1981	1.7	1982	1.7	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1	1988	1.1	1989	1.1	1990	1.1
1980	2.0	1981	1.5	1982	1.5	1983	1.0	1984	1.0	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0	1990	1.0	1991	1.0
1981	1.3	1982	1.3	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8
1982	1.2	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.2.4A.

DATE: MARCH 31, 1981

TABLE 2.2.3

IDLE EMISSION RATES FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS 1

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1966	1.89	0.04
	1966-1967	0.93	0.05
	1968-1969	0.70	0.04
	1970-1971	0.60	0.06
	1972-1974	0.53	0.03
	1975	0.21	0.06
	1976-1978	0.06	0.04
	1979	0.04	0.02
	1980	0.04	0.02
	1981-1982	0.05	0.02
	1983+	0.06	0.02
CO	Pre-1966	18.05	0.51
	1966-1967	10.61	0.47
	1968-1969	12.83	0.61
	1970-1971	10.40	0.70
	1972-1974	7.05	0.52
	1975	3.95	0.59
	1976-1978	3.36	0.59
	1979-1980	0.99	0.47
	1981-1982	1.49	0.45
	1983+	1.79	0.56
NOx	Pre-1966	0.05	0.0
	1966-1970	0.09	0.0
	1971-1973	0.07	0.0
	1974	0.07	0.0
	1975-1978	0.09	0.0
	1979-1980	0.08	0.0
	1981-1982	0.05	0.01
	1983+	0.03	0.01

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.2.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per truck *	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.097	15600.	0.032	15600.	1950.
2	0.094	14000.	0.094	15200.	11650.
3	0.085	12500.	0.085	13625.	26053.
4	0.061	11200.	0.061	12175.	38934.
5	0.091	10100.	0.091	10925.	50466.
6	0.099	9400.	0.099	9925.	60853.
7	0.076	8600.	0.076	9200.	70425.
8	0.060	8000.	0.060	8450.	79231.
9	0.044	7500.	0.044	7875.	87384.
10	0.048	7000.	0.048	7375.	95009.
11	0.046	6600.	0.046	6900.	102137.
12	0.033	6200.	0.033	6500.	108837.
13	0.035	5900.	0.035	6125.	115140.
14	0.033	5500.	0.033	5800.	121112.
15	0.026	5200.	0.026	5425.	126715.
16	0.021	5000.	0.021	5150.	131993.
17	0.015	4700.	0.015	4925.	137040.
18	0.011	4400.	0.011	4625.	141815.
19	0.010	4400.	0.010	4400.	146299.
20+	0.013	4400.	0.013	4400.	150699.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 2.2.4B

FLEET SALES FRACTION* FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I

Model Years	Sales Fraction
Pre-1978	1.000
1978	0.991
1979	0.972
1980	0.966
1981	0.953
1982	0.925
1983	0.911
1984	0.905
1985	0.886
1986	0.862
1987	0.835
1988	0.824
1989	0.813
1990	0.803
1991+	0.800

* The estimated fraction of the light duty truck model year fleet which is gasoline powered.

DATE: MARCH 31, 1981

TABLE 2.2.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS 1
JANUARY 1, 1985

Model Years	(A) LDT1 Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDGT1 Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.032	0.886	0.029	0.032	15600.	495.4	0.051
1984	0.094	0.905	0.086	0.095	15200.	1443.9	0.150
1983	0.085	0.911	0.078	0.087	13625.	1178.8	0.122
1982	0.061	0.925	0.057	0.063	12175.	766.8	0.079
1981	0.091	0.953	0.087	0.096	10925.	1051.2	0.109
1980	0.099	0.966	0.096	0.107	9925.	1057.5	0.110
1979	0.076	0.972	0.074	0.082	9200.	753.9	0.078
1978	0.060	0.991	0.059	0.066	8450.	557.2	0.058
1977	0.044	1.000	0.044	0.049	7875.	383.1	0.040
1976	0.048	1.000	0.048	0.054	7375.	394.8	0.041
1975	0.046	1.000	0.046	0.051	6900.	350.3	0.036
1974	0.033	1.000	0.033	0.037	6500.	239.7	0.025
1973	0.035	1.000	0.035	0.039	6125.	238.1	0.025
1972	0.033	1.000	0.033	0.037	5800.	212.6	0.022
1971	0.026	1.000	0.026	0.029	5425.	157.3	0.016
1970	0.021	1.000	0.021	0.024	5150.	122.4	0.013
1969	0.015	1.000	0.015	0.017	4925.	83.2	0.009
1968	0.011	1.000	0.011	0.013	4625.	58.6	0.006
1967	0.010	1.000	0.010	0.012	4400.	50.8	0.005
1966-	0.013	1.000	0.013	0.014	4400.	61.1	0.006
		DAF:	0.900		TFNORM:	9656.6	

WHERE:

A = January 1 registration mix from Table 2.2.4A.
B = Fleet sales fractions from Table 2.2.4B.
D = Sales weighted fleet mileage accumulation rate from Table 2.2.4A, adjusted to January 1.
D(1) = Annual Miles(1)
D(MYI)= .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 2.2.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*S^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5, \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1966	0.231026E+01	-0.289572E+00	0.152990E-01	-0.446689E-03	0.648183E-05	-0.363456E-07
1966-1967	0.216556E+01	-0.269992E+00	0.144221E-01	-0.433638E-03	0.650735E-05	-0.378100E-07
1968	0.239726E+01	-0.299985E+00	0.161351E-01	-0.487491E-03	0.729093E-05	-0.419769E-07
1969	0.240873E+01	-0.308187E+00	0.168168E-01	-0.506843E-03	0.753855E-05	-0.431596E-07
1970	0.223217E+01	-0.284985E+00	0.153833E-01	-0.456738E-03	0.673486E-05	-0.383798E-07
1971	0.225223E+01	-0.287778E+00	0.156820E-01	-0.473179E-03	0.707954E-05	-0.408456E-07
1972	0.207346E+01	-0.289353E+00	0.173042E-01	-0.554707E-03	0.864204E-05	-0.513107E-07
1973-1974	0.211940E+01	-0.298632E+00	0.184473E-01	-0.616544E-03	0.992062E-05	-0.604020E-07
1975+	0.239540E+01	-0.335781E+00	0.211609E-01	-0.731550E-03	0.120715E-04	-0.748566E-07
CO :						
PRE-1966	0.233989E+01	-0.296978E+00	0.160071E-01	-0.477396E-03	0.706752E-05	-0.403978E-07
1966-1967	0.244154E+01	-0.291473E+00	0.142949E-01	-0.387852E-03	0.529781E-05	-0.282441E-07
1968	0.246551E+01	-0.305023E+00	0.160497E-01	-0.473969E-03	0.699075E-05	-0.399758E-07
1969	0.277804E+01	-0.319130E+00	0.153183E-01	-0.422327E-03	0.584948E-05	-0.314969E-07
1970	0.278899E+01	-0.327107E+00	0.162943E-01	-0.467573E-03	0.671906E-05	-0.374401E-07
1971	0.270743E+01	-0.331038E+00	0.176179E-01	-0.538583E-03	0.817402E-05	-0.477803E-07
1972	0.257522E+01	-0.328888E+00	0.189747E-01	-0.628263E-03	0.100924E-04	-0.612727E-07
1973-1974	0.254557E+01	-0.362954E+00	0.232775E-01	-0.815039E-03	0.136231E-04	-0.855909E-07
1975+	0.248747E+01	-0.391562E+00	0.270721E-01	-0.976178E-03	0.165270E-04	-0.104317E-06
NOx:						
PRE-1966	0.168635E+01	-0.118303E+00	0.654975E-02	-0.137139E-03	0.100849E-05	0.0
1966-1967	0.112646E+01	-0.393405E-01	0.268637E-02	-0.608024E-04	0.477286E-06	0.0
1968	0.122677E+01	-0.444978E-01	0.262476E-02	-0.567150E-04	0.434293E-06	0.0
1969	0.101743E+01	-0.118958E-01	0.914365E-03	-0.215740E-04	0.182300E-06	0.0
1970	0.987600E+00	-0.195674E-01	0.169645E-02	-0.404000E-04	0.328001E-06	0.0
1971	0.115917E+01	-0.444536E-01	0.296425E-02	-0.668990E-04	0.522365E-06	0.0
1972	0.245969E+00	0.841954E-01	-0.340841E-02	0.629880E-04	-0.413975E-06	0.0
1973-1974	0.704805E+00	0.381527E-01	-0.173907E-02	0.326140E-04	-0.203847E-06	0.0
1975+	0.942131E+00	-0.423240E-01	0.386253E-02	-0.939853E-04	0.753883E-06	0.0

Where:
- s = average speed (mph)
- sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w. [1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 2.2.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1966	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1966-1969	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1970-1971	-0.21255E-01	-0.10888E-01	-0.52755E-03	-0.47925E-03	0.93659E-03	0.76666E-02
	1972-1974	-0.21427E-01	-0.66107E-02	-0.39442E-03	0.26288E-02	0.49731E-02	0.12320E-01
	1975-1978	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1979-1980	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1981+	-0.25217E-01	0.11959E-01	-0.56153E-02	-0.12627E-04	-0.36228E-02	0.78765E-02
CO	Pre-1966	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1966-1969	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1970-1971	-0.20843E-01	-0.21165E-01	-0.59951E-02	0.23603E-01	0.18253E-02	0.28483E-01
	1972-1974	-0.19091E-01	-0.13146E-01	-0.42373E-03	0.24717E-01	0.57982E-02	0.25848E-01
	1975-1978	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1979-1980	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1981+	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
NOx	Pre-1966	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1966-1970	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01
	1971-1974	0.38855E-02	-0.18301E-01	-0.24156E-02	-0.10925E-01	-0.21188E-02	-0.18042E-01
	1975-1978	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1979-1980	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1981+	0.15668E-02	-0.34416E-01	0.59496E-03	-0.35871E-01	-0.24888E-02	-0.28830E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 2.2.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

DATE: MARCH 31, 1981

TABLE 2.2.7B

NORMALIZED BAG FRACTIONS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	BO	DO
HC	Pre-1966	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1966-1969	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1970-1971	1.345	0.178	0.919	0.118	0.894	0.093	1.000	0.124
	1972-1974	1.398	0.060	0.885	0.055	0.919	0.036	1.000	0.051
	1975-1978	2.092	0.248	0.649	0.254	0.846	0.152	1.000	0.225
	1979-1980	2.092	1.339	0.649	1.014	0.846	0.717	1.000	1.000
	1981+	2.961	0.164	0.407	0.598	0.652	0.566	1.000	0.500
CO	Pre-1966	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1966-1969	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1970-1971	1.553	0.109	0.933	0.079	0.711	0.038	1.000	0.074
	1972-1974	1.573	0.054	0.902	0.079	0.755	0.029	1.000	0.060
	1975-1978	2.413	0.143	0.608	0.180	0.681	0.068	1.000	0.142
	1979-1980	2.413	0.657	0.608	0.503	0.681	0.251	1.000	0.466
	1981+	3.184	0.551	0.345	0.589	0.601	0.479	1.000	0.551
NOx	Pre-1966	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1966-1970	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0
	1971-1974	1.262	0.022	0.770	0.004	1.242	0.027	1.000	0.014
	1975-1978	1.393	0.050	0.754	0.052	1.172	0.079	1.000	0.059
	1979-1980	1.393	0.056	0.754	0.056	1.172	0.085	1.000	0.064
	1981+	1.801	0.169	0.653	0.141	1.059	0.296	1.000	0.189

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = BO + DO*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.2.8A

AIR CONDITIONING CORRECTION FACTORS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I

* ACCF= U*V*(A + B*(T-75) -1) + 1

Model	HC		CO		NOx	
Years	A	B	A	B	A	B
Pre-1975	0.1023E+01	0.3344E-02	0.1202E+01	0.1808E-02	0.1299E+01	0.5643E-04
1975+	0.1000E+01	0.3512E-02	0.1130E+01	0.1528E-02	0.1221E+01	0.4262E-03

*WHERE:

ACCF = Air Conditioning Correction Factor
V = Fraction of vehicles which are equipped with AC given in Table 2.2.8B
U = Fraction of vehicles with AC that are using it = (DI-DILO)/(DIHI-DI), 0<=U<=1
DI = Discomfort index = (DB+WB)*.4+15
DILO = The highest discomfort index where no AC is used
DIHI = The lowest discomfort index where all vehicles with AC use it
DB = Dry bulb temperature (Fahrenheit)
WB = Wet bulb temperature (Fahrenheit)
T = Ambient temperature (Fahrenheit)

TABLE 2.2.8B

ESTIMATED FRACTION OF
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I
EQUIPPED WITH AIR CONDITIONING

Model Years	Fraction Equipped With Air Conditioning
Pre-1977	0.32
1977	0.52
1978+	0.39

DATE: MARCH 31, 1981

TABLE 2.2.9

EXTRA LOAD CORRECTION FACTORS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I

* XLCF = (XLC-1)*U + 1

Model Years	Coefficients (XLC) HC	CO	NOx
Pre-1966	1.0786	1.2765	0.9535
1966-1969	1.0495	1.1384	1.0313
1970	1.0852	1.2478	1.0313
1971	1.0852	1.2478	1.0753
1972-1974	1.0556	1.1347	1.0753
1975+	1.0455	1.3058	1.0719

* WHERE:
XLCF = Extra load correction factor
U = Fraction of VMT with an extra load
XLC = Correction factor coefficient

TABLE 2.2.10

TRAILER TOWING CORRECTION FACTORS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS I

* TTCF = (TTC-1)*U + 1

Model Years	Coefficients (TTC) HC	CO	NOx
Pre-1966	1.2614	1.9327	1.1184
1966-1969	1.2762	1.8940	1.1384
1970	1.4598	2.4753	1.1384
1971	1.4598	2.4753	1.2170
1972-1974	1.7288	2.1414	1.2170
1975+	1.5909	3.9722	1.3875

* WHERE:
TTCF = Trailer towing correction factor
U = Fraction of VMT towing a trailer
TTC = Correction factor coefficient

DATE: MARCH 31, 1981

TABLE 2.3.1A

EXHAUST EMISSION RATES FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1969	9.57	0.18	10.47
	1969-1971	6.06	0.25	7.31
	1972	6.06	0.17	6.91
	1973-1974	6.06	0.17	6.91
	1975-1976	3.79	0.17	4.64
	1977	3.22	0.17	4.07
	1978-1980	0.55	0.35	2.30
	1981-1982	0.52	0.17	1.37
	1983+	0.59	0.16	1.39
CO	Pre-1969	93.98	2.25	105.23
	1969-1971	57.09	2.55	69.84
	1972	57.09	2.44	69.29
	1973-1974	57.09	2.44	69.29
	1975-1976	47.98	2.44	60.18
	1977	43.42	2.44	55.62
	1978-1980	15.85	2.78	29.75
	1981-1982	7.04	2.14	17.74
	1983+	8.46	2.63	21.61
NOx	Pre-1969	5.44	0.0	5.44
	1969-1971	6.45	0.0	6.45
	1972	7.16	0.0	7.16
	1973-1974	4.61	0.04	4.81
	1975-1976	4.61	0.04	4.81
	1977	3.92	0.04	4.12
	1978-1980	2.33	0.06	2.63
	1981-1982	1.27	0.14	1.97
	1983+	0.75	0.16	1.55

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Section A.2.3 of Appendix A for the emission standards.

DATE: MARCH 31, 1981

TABLE 2.3.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1961	12.70	3.05	31.90	33.70	5.70	7.80
1961-1963	12.70	3.05	31.90	33.70	0.80	2.90
1964-1972	12.70	3.05	31.90	33.70	0.0	2.10
1973-1977	5.78	3.05	12.49	33.70	0.0	0.89
1978-1979	1.56	3.05	2.65	33.70	0.0	0.22
1980+	0.63	3.05	1.07	33.70	0.0	0.09

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 2.3.2A

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	12.3	1952	12.3	1953	12.3	1954	12.3	1955	12.3	1956	12.3	1957	12.3	1958	12.3	1959	12.3	1960	12.3	1961	12.3	1962	12.3
1952	12.2	1953	12.2	1954	12.2	1955	12.2	1956	12.2	1957	12.2	1958	12.2	1959	12.2	1960	12.2	1961	12.2	1962	12.2	1963	12.2
1953	12.2	1954	12.2	1955	12.2	1956	12.2	1957	12.2	1958	12.2	1959	12.2	1960	12.2	1961	12.2	1962	12.2	1963	12.2	1964	12.2
1954	12.1	1955	12.1	1956	12.1	1957	12.1	1958	12.1	1959	12.1	1960	12.1	1961	12.1	1962	12.1	1963	12.1	1964	12.1	1965	12.1
1955	12.0	1956	12.0	1957	12.0	1958	12.0	1959	12.0	1960	12.0	1961	12.0	1962	12.0	1963	12.0	1964	12.0	1965	12.0	1966	12.0
1956	11.9	1957	11.9	1958	11.9	1959	11.9	1960	11.9	1961	11.9	1962	11.9	1963	11.9	1964	11.9	1965	11.9	1966	11.9	1967	11.9
1957	11.8	1958	11.8	1959	11.8	1960	11.8	1961	11.8	1962	11.8	1963	11.8	1964	11.8	1965	11.8	1966	11.8	1967	11.8	1968	11.8
1958	11.7	1959	11.7	1960	11.7	1961	11.7	1962	11.7	1963	11.7	1964	11.7	1965	11.7	1966	11.7	1967	11.7	1968	11.7	1969	9.0
1959	11.6	1960	11.6	1961	11.6	1962	11.6	1963	11.6	1964	11.6	1965	11.6	1966	11.6	1967	11.6	1968	11.6	1969	8.8	1970	8.8
1960	11.4	1961	11.4	1962	11.4	1963	11.4	1964	11.4	1965	11.4	1966	11.4	1967	11.4	1968	11.4	1969	8.6	1970	8.6	1971	8.6
1961	11.3	1962	11.3	1963	11.3	1964	11.3	1965	11.3	1966	11.3	1967	11.3	1968	11.3	1969	8.5	1970	8.5	1971	8.5	1972	7.7
1962	11.2	1963	11.2	1964	11.2	1965	11.2	1966	11.2	1967	11.2	1968	11.2	1969	8.3	1970	8.3	1971	8.3	1972	7.6	1973	7.6
1963	11.0	1964	11.0	1965	11.0	1966	11.0	1967	11.0	1968	11.0	1969	8.1	1970	8.1	1971	8.1	1972	7.4	1973	7.4	1974	7.4
1964	10.9	1965	10.9	1966	10.9	1967	10.9	1968	10.9	1969	7.8	1970	7.8	1971	7.8	1972	7.3	1973	7.3	1974	7.3	1975	5.0
1965	10.7	1966	10.7	1967	10.7	1968	10.7	1969	7.6	1970	7.6	1971	7.6	1972	7.1	1973	7.1	1974	7.1	1975	4.8	1976	4.8
1966	10.5	1967	10.5	1968	10.5	1969	7.3	1970	7.3	1971	7.3	1972	6.9	1973	6.9	1974	6.9	1975	4.7	1976	4.7	1977	4.1
1967	10.3	1968	10.3	1969	7.0	1970	7.0	1971	7.0	1972	6.7	1973	6.7	1974	6.7	1975	4.5	1976	4.5	1977	3.9	1978	1.9
1968	10.0	1969	6.7	1970	6.7	1971	6.7	1972	6.5	1973	6.5	1974	6.5	1975	4.2	1976	4.2	1977	3.7	1978	1.5	1979	1.5
1969	6.4	1970	6.4	1971	6.4	1972	6.3	1973	6.3	1974	6.3	1975	4.0	1976	4.0	1977	3.4	1978	1.0	1979	1.0	1980	1.0
1970	6.1	1971	6.1	1972	6.1	1973	6.1	1974	6.1	1975	3.8	1976	3.8	1977	3.3	1978	0.6	1979	0.6	1980	0.6	1981	0.6

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	12.3	1964	12.3	1965	12.3	1966	12.3	1967	12.3	1968	12.3	1969	9.9	1970	9.9	1971	9.9	1972	8.7	1973	8.7	1974	8.7
1964	12.2	1965	12.2	1966	12.2	1967	12.2	1968	12.2	1969	9.8	1970	9.8	1971	9.8	1972	8.6	1973	8.6	1974	8.6	1975	6.3
1965	12.2	1966	12.2	1967	12.2	1968	12.2	1969	9.6	1970	9.6	1971	9.6	1972	8.5	1973	8.5	1974	8.5	1975	6.2	1976	6.2
1966	12.1	1967	12.1	1968	12.1	1969	9.5	1970	9.5	1971	9.5	1972	8.4	1973	8.4	1974	8.4	1975	6.1	1976	6.1	1977	5.6
1967	12.0	1968	12.0	1969	9.4	1970	9.4	1971	9.4	1972	8.3	1973	8.3	1974	8.3	1975	6.1	1976	6.1	1977	5.5	1978	5.2
1968	11.9	1969	9.3	1970	9.3	1971	9.3	1972	8.2	1973	8.2	1974	8.2	1975	6.0	1976	6.0	1977	5.4	1978	5.0	1979	5.0
1969	9.1	1970	9.1	1971	9.1	1972	8.1	1973	8.1	1974	8.1	1975	5.9	1976	5.9	1977	5.3	1978	4.8	1979	4.8	1980	4.8
1970	9.0	1971	9.0	1972	8.0	1973	8.0	1974	8.0	1975	5.8	1976	5.8	1977	5.2	1978	4.6	1979	4.6	1980	4.6	1981	2.5
1971	8.8	1972	7.9	1973	7.9	1974	7.9	1975	5.7	1976	5.7	1977	5.1	1978	4.4	1979	4.4	1980	4.4	1981	2.4	1982	2.4
1972	7.8	1973	7.8	1974	7.8	1975	5.5	1976	5.5	1977	5.0	1978	4.2	1979	4.2	1980	4.2	1981	2.3	1982	2.3	1983	2.2
1973	7.7	1974	7.7	1975	5.4	1976	5.4	1977	4.9	1978	3.9	1979	3.9	1980	3.9	1981	2.2	1982	2.2	1983	2.1	1984	2.1
1974	7.6	1975	5.3	1976	5.3	1977	4.7	1978	3.6	1979	3.6	1980	3.6	1981	2.0	1982	2.0	1983	2.0	1984	2.0	1985	2.0
1975	5.2	1976	5.2	1977	4.6	1978	3.4	1979	3.4	1980	3.4	1981	1.9	1982	1.9	1983	1.9	1984	1.9	1985	1.9	1986	1.9
1976	5.0	1977	4.4	1978	3.0	1979	3.0	1980	3.0	1981	1.7	1982	1.7	1983	1.7	1984	1.7	1985	1.7	1986	1.7	1987	1.7
1977	4.3	1978	2.7	1979	2.7	1980	2.7	1981	1.6	1982	1.6	1983	1.6	1984	1.6	1985	1.6	1986	1.6	1987	1.6	1988	1.6
1978	2.3	1979	2.3	1980	2.3	1981	1.4	1982	1.4	1983	1.4	1984	1.4	1985	1.4	1986	1.4	1987	1.4	1988	1.4	1989	1.4
1979	1.9	1980	1.9	1981	1.2	1982	1.2	1983	1.2	1984	1.2	1985	1.2	1986	1.2	1987	1.2	1988	1.2	1989	1.2	1990	1.2
1980	1.5	1981	1.0	1982	1.0	1983	1.0	1984	1.0	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0	1990	1.0	1991	1.0
1981	0.7	1982	0.7	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8
1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.3.4A.

DATE: MARCH 31, 1981

TABLE 2.3.2B

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	128.3	1952	128.3	1953	128.3	1954	128.3	1955	128.3	1956	128.3	1957	128.3	1958	128.3	1959	128.3	1960	128.3	1961	128.3	1962	128.3
1952	127.3	1953	127.3	1954	127.3	1955	127.3	1956	127.3	1957	127.3	1958	127.3	1959	127.3	1960	127.3	1961	127.3	1962	127.3	1963	127.3
1953	126.3	1954	126.3	1955	126.3	1956	126.3	1957	126.3	1958	126.3	1959	126.3	1960	126.3	1961	126.3	1962	126.3	1963	126.3	1964	126.3
1954	125.2	1955	125.2	1956	125.2	1957	125.2	1958	125.2	1959	125.2	1960	125.2	1961	125.2	1962	125.2	1963	125.2	1964	125.2	1965	125.2
1955	124.0	1956	124.0	1957	124.0	1958	124.0	1959	124.0	1960	124.0	1961	124.0	1962	124.0	1963	124.0	1964	124.0	1965	124.0	1966	124.0
1956	122.9	1957	122.9	1958	122.9	1959	122.9	1960	122.9	1961	122.9	1962	122.9	1963	122.9	1964	122.9	1965	122.9	1966	122.9	1967	122.9
1957	121.6	1958	121.6	1959	121.6	1960	121.6	1961	121.6	1962	121.6	1963	121.6	1964	121.6	1965	121.6	1966	121.6	1967	121.6	1968	121.6
1958	120.2	1959	120.2	1960	120.2	1961	120.2	1962	120.2	1963	120.2	1964	120.2	1965	120.2	1966	120.2	1967	120.2	1968	120.2	1969	86.8
1959	118.8	1960	118.8	1961	118.8	1962	118.8	1963	118.8	1964	118.8	1965	118.8	1966	118.8	1967	118.8	1968	118.8	1969	85.2	1970	85.2
1960	117.3	1961	117.3	1962	117.3	1963	117.3	1964	117.3	1965	117.3	1966	117.3	1967	117.3	1968	117.3	1969	83.5	1970	83.5	1971	83.5
1961	115.6	1962	115.6	1963	115.6	1964	115.6	1965	115.6	1966	115.6	1967	115.6	1968	115.6	1969	81.6	1970	81.6	1971	81.6	1972	80.6
1962	113.9	1963	113.9	1964	113.9	1965	113.9	1966	113.9	1967	113.9	1968	113.9	1969	79.7	1970	79.7	1971	79.7	1972	78.7	1973	78.7
1963	112.0	1964	112.0	1965	112.0	1966	112.0	1967	112.0	1968	112.0	1969	77.6	1970	77.6	1971	77.6	1972	76.7	1973	76.7	1974	76.7
1964	110.0	1965	110.0	1966	110.0	1967	110.0	1968	110.0	1969	75.3	1970	75.3	1971	75.3	1972	74.5	1973	74.5	1974	74.5	1975	65.4
1965	107.9	1966	107.9	1967	107.9	1968	107.9	1969	72.8	1970	72.8	1971	72.8	1972	72.1	1973	72.1	1974	72.1	1975	63.0	1976	63.0
1966	105.5	1967	105.5	1968	105.5	1969	70.1	1970	70.1	1971	70.1	1972	69.6	1973	69.6	1974	69.6	1975	60.5	1976	60.5	1977	55.9
1967	102.8	1968	102.8	1969	67.1	1970	67.1	1971	67.1	1972	66.7	1973	66.7	1974	66.7	1975	57.6	1976	57.6	1977	53.0	1978	26.8
1968	99.9	1969	63.8	1970	63.8	1971	63.8	1972	63.5	1973	63.5	1974	63.5	1975	54.4	1976	54.4	1977	49.9	1978	23.2	1979	23.2
1969	60.1	1970	60.1	1971	60.1	1972	60.0	1973	60.0	1974	60.0	1975	50.9	1976	50.9	1977	46.3	1978	19.1	1979	19.1	1980	19.1
1970	57.6	1971	57.6	1972	57.6	1973	57.6	1974	57.6	1975	48.5	1976	48.5	1977	43.9	1978	16.4	1979	16.4	1980	16.4	1981	7.5

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	128.3	1964	128.3	1965	128.3	1966	128.3	1967	128.3	1968	128.3	1969	96.0	1970	96.0	1971	96.0	1972	94.3	1973	94.3	1974	94.3
1964	127.3	1965	127.3	1966	127.3	1967	127.3	1968	127.3	1969	94.8	1970	94.8	1971	94.8	1972	93.2	1973	93.2	1974	93.2	1975	84.1
1965	126.3	1966	126.3	1967	126.3	1968	126.3	1969	93.7	1970	93.7	1971	93.7	1972	92.1	1973	92.1	1974	92.1	1975	83.0	1976	83.0
1966	125.2	1967	125.2	1968	125.2	1969	92.5	1970	92.5	1971	92.5	1972	90.9	1973	90.9	1974	90.9	1975	81.8	1976	81.8	1977	77.3
1967	124.0	1968	124.0	1969	91.2	1970	91.2	1971	91.2	1972	89.7	1973	89.7	1974	89.7	1975	80.6	1976	80.6	1977	76.0	1978	53.0
1968	122.9	1969	89.8	1970	89.8	1971	89.8	1972	88.4	1973	88.4	1974	88.4	1975	79.3	1976	79.3	1977	74.7	1978	51.5	1979	51.5
1969	88.4	1970	88.4	1971	88.4	1972	87.0	1973	87.0	1974	87.0	1975	77.9	1976	77.9	1977	73.4	1978	50.0	1979	50.0	1980	50.0
1970	86.8	1971	86.8	1972	85.5	1973	85.5	1974	85.5	1975	76.4	1976	76.4	1977	71.9	1978	48.3	1979	48.3	1980	48.3	1981	32.0
1971	85.2	1972	84.0	1973	84.0	1974	84.0	1975	74.9	1976	74.9	1977	70.3	1978	46.5	1979	46.5	1980	46.5	1981	30.6	1982	30.6
1972	82.3	1973	82.3	1974	82.3	1975	73.2	1976	73.2	1977	68.7	1978	44.6	1979	44.6	1980	44.6	1981	29.2	1982	29.2	1983	35.7
1973	80.6	1974	80.6	1975	71.5	1976	71.5	1977	66.9	1978	42.6	1979	42.6	1980	42.6	1981	27.6	1982	27.6	1983	33.8	1984	33.8
1974	78.7	1975	69.6	1976	69.6	1977	65.0	1978	40.5	1979	40.5	1980	40.5	1981	26.0	1982	26.0	1983	31.8	1984	31.8	1985	31.8
1975	67.6	1976	67.6	1977	63.0	1978	38.2	1979	38.2	1980	38.2	1981	24.2	1982	24.2	1983	29.6	1984	29.6	1985	29.6	1986	29.6
1976	65.4	1977	60.8	1978	35.7	1979	35.7	1980	35.7	1981	22.3	1982	22.3	1983	27.2	1984	27.2	1985	27.2	1986	27.2	1987	27.2
1977	58.5	1978	33.0	1979	33.0	1980	33.0	1981	20.2	1982	20.2	1983	24.7	1984	24.7	1985	24.7	1986	24.7	1987	24.7	1988	24.7
1978	30.1	1979	30.1	1980	30.1	1981	18.0	1982	18.0	1983	21.9	1984	21.9	1985	21.9	1986	21.9	1987	21.9	1988	21.9	1989	21.9
1979	26.8	1980	26.8	1981	15.5	1982	15.5	1983	18.8	1984	18.8	1985	18.8	1986	18.8	1987	18.8	1988	18.8	1989	18.8	1990	18.8
1980	23.2	1981	12.7	1982	12.7	1983	15.4	1984	15.4	1985	15.4	1986	15.4	1987	15.4	1988	15.4	1989	15.4	1990	15.4	1991	15.4
1981	9.6	1982	9.6	1983	11.6	1984	11.6	1985	11.6	1986	11.6	1987	11.6	1988	11.6	1989	11.6	1990	11.6	1991	11.6	1992	11.6
1982	7.5	1983	9.0	1984	9.0	1985	9.0	1986	9.0	1987	9.0	1988	9.0	1989	9.0	1990	9.0	1991	9.0	1992	9.0	1993	9.0

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.3.4A.

DATE: MARCH 31, 1981

TABLE 2.3.2C

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	5.4	1952	5.4	1953	5.4	1954	5.4	1955	5.4	1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4
1952	5.4	1953	5.4	1954	5.4	1955	5.4	1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4
1953	5.4	1954	5.4	1955	5.4	1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4
1954	5.4	1955	5.4	1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4
1955	5.4	1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4
1956	5.4	1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4
1957	5.4	1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4
1958	5.4	1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	6.4
1959	5.4	1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4
1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4
1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2
1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	5.0
1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	4.9	1974	4.9
1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	4.9	1974	4.9	1975	4.9
1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	4.9	1974	4.9	1975	4.9	1976	4.9
1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	4.8	1974	4.8	1975	4.8	1976	4.8	1977	4.1
1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	4.8	1974	4.8	1975	4.8	1976	4.8	1977	4.1	1978	2.6
1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	4.7	1974	4.7	1975	4.7	1976	4.7	1977	4.0	1978	2.5	1979	2.5
1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	4.7	1974	4.7	1975	4.7	1976	4.7	1977	4.0	1978	2.4	1979	2.4	1980	2.4
1970	6.4	1971	6.4	1972	7.2	1973	4.6	1974	4.6	1975	4.6	1976	4.6	1977	3.9	1978	2.3	1979	2.3	1980	2.3	1981	1.3

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	5.2	1974	5.2
1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	5.2	1974	5.2	1975	5.2
1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	5.2	1974	5.2	1975	5.2	1976	5.2
1966	5.4	1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	5.2	1974	5.2	1975	5.2	1976	5.2	1977	4.5
1967	5.4	1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	5.1	1974	5.1	1975	5.1	1976	5.1	1977	4.5	1978	3.1
1968	5.4	1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	5.1	1974	5.1	1975	5.1	1976	5.1	1977	4.4	1978	3.1	1979	3.1
1969	6.4	1970	6.4	1971	6.4	1972	7.2	1973	5.1	1974	5.1	1975	5.1	1976	5.1	1977	4.4	1978	3.1	1979	3.1	1980	3.1
1970	6.4	1971	6.4	1972	7.2	1973	5.1	1974	5.1	1975	5.1	1976	5.1	1977	4.4	1978	3.0	1979	3.0	1980	3.0	1981	2.9
1971	6.4	1972	7.2	1973	5.1	1974	5.1	1975	5.1	1976	5.1	1977	4.4	1978	3.0	1979	3.0	1980	3.0	1981	2.8	1982	2.8
1972	7.2	1973	5.0	1974	5.0	1975	5.0	1976	5.0	1977	4.3	1978	3.0	1979	3.0	1980	3.0	1981	2.7	1982	2.7	1983	2.4
1973	5.0	1974	5.0	1975	5.0	1976	5.0	1977	4.3	1978	2.9	1979	2.9	1980	2.9	1981	2.6	1982	2.6	1983	2.3	1984	2.3
1974	5.0	1975	5.0	1976	5.0	1977	4.3	1978	2.9	1979	2.9	1980	2.9	1981	2.5	1982	2.5	1983	2.2	1984	2.2	1985	2.2
1975	4.9	1976	4.9	1977	4.2	1978	2.8	1979	2.8	1980	2.8	1981	2.4	1982	2.4	1983	2.0	1984	2.0	1985	2.0	1986	2.0
1976	4.9	1977	4.2	1978	2.8	1979	2.8	1980	2.8	1981	2.3	1982	2.3	1983	1.9	1984	1.9	1985	1.9	1986	1.9	1987	1.9
1977	4.2	1978	2.7	1979	2.7	1980	2.7	1981	2.1	1982	2.1	1983	1.7	1984	1.7	1985	1.7	1986	1.7	1987	1.7	1988	1.7
1978	2.6	1979	2.6	1980	2.6	1981	2.0	1982	2.0	1983	1.6	1984	1.6	1985	1.6	1986	1.6	1987	1.6	1988	1.6	1989	1.6
1979	2.6	1980	2.6	1981	1.8	1982	1.8	1983	1.4	1984	1.4	1985	1.4	1986	1.4	1987	1.4	1988	1.4	1989	1.4	1990	1.4
1980	2.5	1981	1.6	1982	1.6	1983	1.2	1984	1.2	1985	1.2	1986	1.2	1987	1.2	1988	1.2	1989	1.2	1990	1.2	1991	1.2
1981	1.4	1982	1.4	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9	1991	0.9	1992	0.9
1982	1.3	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8	1993	0.8

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.3.4A.

DATE: MARCH 31, 1981

TABLE 2.3.3

IDLE EMISSION RATES FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1969	1.67	0.03
	1969-1971	1.06	0.04
	1972	1.06	0.03
	1973-1974	1.06	0.03
	1975-1976	0.66	0.03
	1977	0.56	0.03
	1978-1980	0.06	0.04
	1981-1982	0.06	0.02
	1983+	0.06	0.02
CO	Pre-1969	18.98	0.45
	1969-1971	11.53	0.52
	1972	11.53	0.49
	1973-1974	11.53	0.49
	1975-1976	9.69	0.49
	1977	8.77	0.49
	1978-1980	3.36	0.59
	1981-1982	1.49	0.45
	1983+	1.79	0.56
NOx	Pre-1969	0.08	0.0
	1969-1971	0.10	0.0
	1972	0.11	0.0
	1973-1974	0.07	0.0
	1975-1976	0.07	0.0
	1977	0.06	0.0
	1978-1980	0.04	0.0
	1981-1982	0.02	0.0
	1983+	0.01	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.3.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per truck *	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.245	15800.	0.082	15800.	1975.
2	0.207	14200.	0.207	15400.	11800.
3	0.155	12600.	0.155	13800.	26400.
4	0.097	11400.	0.097	12300.	39412.
5	0.057	10300.	0.057	11125.	51116.
6	0.056	9500.	0.056	10100.	61700.
7	0.039	8700.	0.039	9300.	71400.
8	0.030	8100.	0.030	8550.	80306.
9	0.023	7600.	0.023	7975.	88559.
10	0.020	7100.	0.020	7475.	96284.
11	0.017	6600.	0.017	6975.	103509.
12	0.011	6300.	0.011	6525.	110240.
13	0.010	6000.	0.010	6225.	116615.
14	0.008	5500.	0.008	5875.	122684.
15	0.005	5200.	0.005	5425.	128315.
16	0.006	5100.	0.006	5175.	133596.
17	0.004	4700.	0.004	5000.	138712.
18	0.003	4400.	0.003	4625.	143515.
19	0.003	4400.	0.003	4400.	147999.
20+	0.004	4400.	0.004	4400.	152399.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 2.3.4B

FLEET SALES FRACTION* FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II

Model Years	Sales Fraction
Pre-1978	1.000
1978	0.991
1979	0.972
1980	0.966
1981	0.953
1982	0.925
1983	0.911
1984	0.905
1985	0.886
1986	0.862
1987	0.835
1988	0.824
1989	0.813
1990	0.803
1991+	0.800

* The estimated fraction of the light duty truck model year fleet which is gasoline powered.

DATE: MARCH 31, 1981

TABLE 2.3.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II
JANUARY 1, 1985

Model Years	(A) LDT2 Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDGT2 Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.082	0.886	0.072	0.093	15800.	1463.0	0.119
1984	0.207	0.905	0.187	0.240	15400.	3695.0	0.301
1983	0.155	0.911	0.141	0.181	13800.	2500.6	0.203
1982	0.097	0.925	0.090	0.115	12300.	1413.5	0.115
1981	0.057	0.953	0.055	0.070	11125.	776.7	0.063
1980	0.056	0.966	0.054	0.069	10100.	699.8	0.057
1979	0.039	0.972	0.038	0.049	9300.	452.7	0.037
1978	0.030	0.991	0.029	0.038	8550.	321.2	0.026
1977	0.023	1.000	0.023	0.030	7975.	235.9	0.019
1976	0.020	1.000	0.020	0.026	7475.	192.4	0.016
1975	0.017	1.000	0.017	0.022	6975.	154.5	0.013
1974	0.011	1.000	0.011	0.014	6525.	93.6	0.008
1973	0.010	1.000	0.010	0.012	6225.	77.3	0.006
1972	0.008	1.000	0.008	0.010	5875.	60.2	0.005
1971	0.005	1.000	0.005	0.007	5425.	37.5	0.003
1970	0.006	1.000	0.006	0.007	5175.	36.5	0.003
1969	0.004	1.000	0.004	0.006	5000.	28.8	0.002
1968	0.003	1.000	0.003	0.004	4625.	16.6	0.001
1967	0.003	1.000	0.003	0.003	4400.	14.7	0.001
1966-	0.004	1.000	0.004	0.005	4400.	21.4	0.002
		DAF:	0.781		TFNORM:	12291.9	

WHERE:
- A = January 1 registration mix from Table 2.3.4A.
- B = Fleet sales fractions from Table 2.3.4B.
- D = Sales weighted fleet mileage accumulation rate from Table 2.3.4A, adjusted to January 1.
- D(1) = Annual Miles(1)
- D(MYI) = .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 2.3.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*S^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5, \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1969	0.231026E+01	-0.289572E+00	0.152990E-01	-0.446689E-03	0.648183E-05	-0.363456E-07
1969-1971	0.216556E+01	-0.269992E+00	0.144221E-01	-0.433638E-03	0.650735E-05	-0.378100E-07
1972	0.234948E+01	-0.304959E+00	0.168416E-01	-0.509623E-03	0.759516E-05	-0.434963E-07
1973-1977	0.211940E+01	-0.298632E+00	0.184473E-01	-0.616544E-03	0.992062E-05	-0.604020E-07
1978+	0.239540E+01	-0.335781E+00	0.211609E-01	-0.731550E-03	0.120715E-04	-0.748566E-07
CO :						
PRE-1969	0.233989E+01	-0.296978E+00	0.160071E-01	-0.477396E-03	0.706752E-05	-0.403978E-07
1969-1971	0.244154E+01	-0.291473E+00	0.142949E-01	-0.387852E-03	0.529781E-05	-0.282441E-07
1972	0.268454E+01	-0.332817E+00	0.176277E-01	-0.524123E-03	0.772221E-05	-0.437025E-07
1973-1977	0.254557E+01	-0.362954E+00	0.232775E-01	-0.815039E-03	0.136231E-04	-0.855909E-07
1978+	0.248747E+01	-0.391562E+00	0.270721E-01	-0.976178E-03	0.165270E-04	-0.104317E-06
NOx:						
PRE-1969	0.168635E+01	-0.118303E+00	0.654975E-02	-0.137139E-03	0.100849E-05	0.0
1969-1971	0.112646E+01	-0.393405E-01	0.268637E-02	-0.608024E-04	0.477286E-06	0.0
1972	0.128169E+01	-0.804874E-01	0.535735E-02	-0.118891E-03	0.901060E-06	0.0
1973-1977	0.704805E+00	0.381527E-01	-0.173907E-02	0.326140E-04	-0.203847E-06	0.0
1978+	0.942131E+00	-0.423240E-01	0.386253E-02	-0.939853E-04	0.753883E-06	0.0

Where:
- s = average speed (mph)
- sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w. [1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 2.3.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1969	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1969-1971	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1972-1977	-0.21427E-01	-0.66107E-02	-0.39442E-03	0.26288E-02	0.49731E-02	0.12320E-01
	1978-1980	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1981+	-0.25217E-01	0.11959E-01	-0.56153E-02	-0.12627E-04	-0.36228E-02	0.78765E-02
CO	Pre-1969	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1969-1971	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1972-1977	-0.19091E-01	-0.13146E-01	-0.42373E-03	0.24717E-01	0.57982E-02	0.25848E-01
	1978-1980	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1981+	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
NOx	Pre-1969	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1969-1972	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01
	1973-1977	0.38855E-02	-0.18301E-01	-0.24156E-02	-0.10925E-01	-0.21188E-02	-0.18042E-01
	1978-1980	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1981+	0.15668E-02	-0.34416E-01	0.59496E-03	-0.35871E-01	-0.24888E-02	-0.28830E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 2.3.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

DATE: MARCH 31, 1981

TABLE 2.3.7B

NORMALIZED BAG FRACTIONS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II

Pol	Model Years	Normalized Fractions Test Seg.#1 B1	D1	Test Seg.#2 B2	D2	Test Seg.#3 B3	D3	Total Test BO	DO
HC	Pre-1969	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1969-1971	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1972-1977	1.398	0.060	0.885	0.055	0.919	0.036	1.000	0.051
	1978-1980	2.092	0.248	0.649	0.254	0.846	0.152	1.000	0.225
	1981+	2.961	0.164	0.407	0.598	0.652	0.566	1.000	0.500
CO	Pre-1969	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1969-1971	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1972-1977	1.573	0.054	0.902	0.079	0.755	0.029	1.000	0.060
	1978-1980	2.413	0.143	0.608	0.180	0.681	0.068	1.000	0.142
	1981+	3.184	0.551	0.345	0.589	0.601	0.479	1.000	0.551
NOx	Pre-1969	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1969-1972	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0
	1973-1977	1.262	0.022	0.770	0.004	1.242	0.027	1.000	0.014
	1978-1980	1.393	0.050	0.754	0.052	1.172	0.079	1.000	0.059
	1981+	1.801	0.169	0.653	0.141	1.059	0.296	1.000	0.189

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = BO + DO*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.3.8A

AIR CONDITIONING CORRECTION FACTORS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II

* ACCF= U*V*(A + B*(T-75) -1) + 1

Model Years	HC		CO		NOx	
	A	B	A	B	A	B
Pre-1978	0.1023E+01	0.3344E-02	0.1202E+01	0.1808E-02	0.1299E+01	0.5643E-04
1978+	0.1000E+01	0.3512E-02	0.1130E+01	0.1528E-02	0.1221E+01	0.4262E-03

*WHERE:
- ACCF = Air Conditioning Correction Factor
- V = Fraction of vehicles which are equipped with AC given in Table 2.3.8B
- U = Fraction of vehicles with AC that are using it = (DI-DILO)/(DIHI-DI), 0<=U<=1
- DI = Discomfort index = (DB+WB)*.4+15
- DILO = The highest discomfort index where no AC is used
- DIHI = The lowest discomfort index where all vehicles with AC use it
- DB = Dry bulb temperature (Fahrenheit)
- WB = Wet bulb temperature (Fahrenheit)
- T = Ambient temperature (Fahrenheit)

TABLE 2.3.8B

ESTIMATED FRACTION OF
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II
EQUIPPED WITH AIR CONDITIONING

Model Years	Fraction Equipped With Air Conditioning
Pre-1977	0.32
1977	0.52
1978+	0.39

DATE: MARCH 31, 1981

TABLE 2.3.9

EXTRA LOAD CORRECTION FACTORS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II

* XLCF = (XLC-1)*U + 1

Model Years	Coefficients (XLC) HC	CO	NOx
Pre-1969	1.0786	1.2765	0.9535
1969-1971	1.0495	1.1384	1.0313
1972	1.0556	1.1347	1.0313
1973-1977	1.0556	1.1347	1.0753
1978+	1.0455	1.3058	1.0719

* WHERE:
XLCF = Extra load correction factor
U = Fraction of VMT with an extra load
XLC = Correction factor coefficient

TABLE 2.3.10

TRAILER TOWING CORRECTION FACTORS FOR
CALIFORNIA
LIGHT DUTY GASOLINE POWERED TRUCKS II

* TTCF = (TTC-1)*U + 1

Model Years	Coefficients (TTC) HC	CO	NOx
Pre-1969	1.2614	1.9327	1.1184
1969-1971	1.2762	1.8940	1.1384
1972	1.7288	2.1414	1.1384
1973-1977	1.7288	2.1414	1.2170
1978+	1.5909	3.9722	1.3875

* WHERE:
TTCF = Trailer towing correction factor
U = Fraction of VMT towing a trailer
TTC = Correction factor coefficient

DATE: MARCH 31, 1981

TABLE 2.4.1A

EXHAUST EMISSION RATES FOR
CALIFORNIA
HEAVY DUTY GASOLINE POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1969	18.26	0.35	20.01
	1969-1971	11.09	0.47	13.44
	1972	11.09	0.32	12.69
	1973-1974	11.09	0.32	12.69
	1975-1976	6.93	0.32	8.53
	1977-1979	3.25	0.14	3.95
	1980-1983	3.25	0.14	3.95
	1984+	1.62	0.39	3.57
CO	Pre-1969	227.63	5.46	254.93
	1969-1971	190.20	8.75	233.95
	1972	190.20	8.37	232.05
	1973-1974	190.20	8.37	232.05
	1975-1976	159.85	8.37	201.70
	1977-1979	144.67	6.37	176.52
	1980-1983	144.67	6.37	176.52
	1984+	15.82	3.48	33.22
NOx	Pre-1969	8.88	0.0	8.88
	1969-1971	11.40	0.0	11.40
	1972	12.65	0.0	12.65
	1973-1974	9.45	0.09	9.90
	1975-1976	9.45	0.09	9.90
	1977-1979	8.03	0.09	8.48
	1980-1983	5.67	0.09	6.12
	1984+	4.25	0.09	4.70

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.2.4, for the emission standards.

DATE: MARCH 31, 1981

TABLE 2.4.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
CALIFORNIA
HEAVY DUTY GASOLINE POWERED VEHICLES

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1961	12.70	6.88	31.90	36.70	5.70	8.95
1961-1963	12.70	6.88	31.90	36.70	0.80	4.05
1964-1972	12.70	6.88	31.90	36.70	0.0	3.25
1973-1977	5.78	6.88	12.49	36.70	0.0	1.42
1978-1979	1.56	6.88	2.65	36.70	0.0	0.36
1980+	0.63	6.88	1.07	36.70	0.0	0.15

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 2.4.2A

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
HEAVY DUTY GASOLINE POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	25.0	1952	25.0	1953	25.0	1954	25.0	1955	25.0	1956	25.0	1957	25.0	1958	25.0	1959	25.0	1960	25.0	1961	25.0	1962	25.0
1952	24.8	1953	24.8	1954	24.8	1955	24.8	1956	24.8	1957	24.8	1958	24.8	1959	24.8	1960	24.8	1961	24.8	1962	24.8	1963	24.8
1953	24.6	1954	24.6	1955	24.6	1956	24.6	1957	24.6	1958	24.6	1959	24.6	1960	24.6	1961	24.6	1962	24.6	1963	24.6	1964	24.6
1954	24.4	1955	24.4	1956	24.4	1957	24.4	1958	24.4	1959	24.4	1960	24.4	1961	24.4	1962	24.4	1963	24.4	1964	24.4	1965	24.4
1955	24.2	1956	24.2	1957	24.2	1958	24.2	1959	24.2	1960	24.2	1961	24.2	1962	24.2	1963	24.2	1964	24.2	1965	24.2	1966	24.2
1956	24.0	1957	24.0	1958	24.0	1959	24.0	1960	24.0	1961	24.0	1962	24.0	1963	24.0	1964	24.0	1965	24.0	1966	24.0	1967	24.0
1957	23.8	1958	23.8	1959	23.8	1960	23.8	1961	23.8	1962	23.8	1963	23.8	1964	23.8	1965	23.8	1966	23.8	1967	23.8	1968	23.8
1958	23.5	1959	23.5	1960	23.5	1961	23.5	1962	23.5	1963	23.5	1964	23.5	1965	23.5	1966	23.5	1967	23.5	1968	23.5	1969	18.2
1959	23.3	1960	23.3	1961	23.3	1962	23.3	1963	23.3	1964	23.3	1965	23.3	1966	23.3	1967	23.3	1968	23.3	1969	17.8	1970	17.8
1960	23.0	1961	23.0	1962	23.0	1963	23.0	1964	23.0	1965	23.0	1966	23.0	1967	23.0	1968	23.0	1969	17.4	1970	17.4	1971	17.4
1961	22.7	1962	22.7	1963	22.7	1964	22.7	1965	22.7	1966	22.7	1967	22.7	1968	22.7	1969	17.0	1970	17.0	1971	17.0	1972	15.1
1962	22.3	1963	22.3	1964	22.3	1965	22.3	1966	22.3	1967	22.3	1968	22.3	1969	16.5	1970	16.5	1971	16.5	1972	14.8	1973	14.8
1963	21.9	1964	21.9	1965	21.9	1966	21.9	1967	21.9	1968	21.9	1969	16.0	1970	16.0	1971	16.0	1972	14.4	1973	14.4	1974	14.4
1964	21.5	1965	21.5	1966	21.5	1967	21.5	1968	21.5	1969	15.5	1970	15.5	1971	15.5	1972	14.1	1973	14.1	1974	14.1	1975	9.9
1965	21.0	1966	21.0	1967	21.0	1968	21.0	1969	14.8	1970	14.8	1971	14.8	1972	13.6	1973	13.6	1974	13.6	1975	9.5	1976	9.5
1966	20.5	1967	20.5	1968	20.5	1969	14.1	1970	14.1	1971	14.1	1972	13.2	1973	13.2	1974	13.2	1975	9.0	1976	9.0	1977	4.2
1967	20.0	1968	20.0	1969	13.4	1970	13.4	1971	13.4	1972	12.6	1973	12.6	1974	12.6	1975	8.5	1976	8.5	1977	3.9	1978	3.9
1968	19.3	1969	12.5	1970	12.5	1971	12.5	1972	12.1	1973	12.1	1974	12.1	1975	7.9	1976	7.9	1977	3.7	1978	3.7	1979	3.7
1969	11.6	1970	11.6	1971	11.6	1972	11.4	1973	11.4	1974	11.4	1975	7.3	1976	7.3	1977	3.4	1978	3.4	1979	3.4	1980	3.4
1970	11.1	1971	11.1	1972	11.1	1973	11.1	1974	11.1	1975	6.9	1976	6.9	1977	3.3	1978	3.3	1979	3.3	1980	3.3	1981	3.3

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	25.0	1964	25.0	1965	25.0	1966	25.0	1967	25.0	1968	25.0	1969	20.1	1970	20.1	1971	20.1	1972	17.2	1973	17.2	1974	17.2
1964	24.8	1965	24.8	1966	24.8	1967	24.8	1968	24.8	1969	19.8	1970	19.8	1971	19.8	1972	17.1	1973	17.1	1974	17.1	1975	12.9
1965	24.6	1966	24.6	1967	24.6	1968	24.6	1969	19.6	1970	19.6	1971	19.6	1972	16.9	1973	16.9	1974	16.9	1975	12.7	1976	12.7
1966	24.4	1967	24.4	1968	24.4	1969	19.4	1970	19.4	1971	19.4	1972	16.7	1973	16.7	1974	16.7	1975	12.6	1976	12.6	1977	5.7
1967	24.2	1968	24.2	1969	19.1	1970	19.1	1971	19.1	1972	16.5	1973	16.5	1974	16.5	1975	12.4	1976	12.4	1977	5.6	1978	5.6
1968	24.0	1969	18.8	1970	18.8	1971	18.8	1972	16.3	1973	16.3	1974	16.3	1975	12.2	1976	12.2	1977	5.5	1978	5.5	1979	5.5
1969	18.5	1970	18.5	1971	18.5	1972	16.1	1973	16.1	1974	16.1	1975	12.0	1976	12.0	1977	5.5	1978	5.5	1979	5.5	1980	5.5
1970	18.2	1971	18.2	1972	15.9	1973	15.9	1974	15.9	1975	11.7	1976	11.7	1977	5.4	1978	5.4	1979	5.4	1980	5.4	1981	5.4
1971	17.8	1972	15.7	1973	15.7	1974	15.7	1975	11.5	1976	11.5	1977	5.3	1978	5.3	1979	5.3	1980	5.3	1981	5.3	1982	5.3
1972	15.4	1973	15.4	1974	15.4	1975	11.2	1976	11.2	1977	5.1	1978	5.1	1979	5.1	1980	5.1	1981	5.1	1982	5.1	1983	5.1
1973	15.1	1974	15.1	1975	10.9	1976	10.9	1977	5.0	1978	5.0	1979	5.0	1980	5.0	1981	5.0	1982	5.0	1983	5.0	1984	6.5
1974	14.8	1975	10.6	1976	10.6	1977	4.9	1978	4.9	1979	4.9	1980	4.9	1981	4.9	1982	4.9	1983	4.9	1984	6.1	1985	6.1
1975	10.3	1976	10.3	1977	4.7	1978	4.7	1979	4.7	1980	4.7	1981	4.7	1982	4.7	1983	4.7	1984	5.7	1985	5.7	1986	5.7
1976	9.9	1977	4.6	1978	4.6	1979	4.6	1980	4.6	1981	4.6	1982	4.6	1983	4.6	1984	5.2	1985	5.2	1986	5.2	1987	5.2
1977	4.4	1978	4.4	1979	4.4	1980	4.4	1981	4.4	1982	4.4	1983	4.4	1984	4.7	1985	4.7	1986	4.7	1987	4.7	1988	4.7
1978	4.2	1979	4.2	1980	4.2	1981	4.2	1982	4.2	1983	4.2	1984	4.1	1985	4.1	1986	4.1	1987	4.1	1988	4.1	1989	4.1
1979	3.9	1980	3.9	1981	3.9	1982	3.9	1983	3.9	1984	3.5	1985	3.5	1986	3.5	1987	3.5	1988	3.5	1989	3.5	1990	3.5
1980	3.7	1981	3.7	1982	3.7	1983	3.7	1984	2.8	1985	2.8	1986	2.8	1987	2.8	1988	2.8	1989	2.8	1990	2.8	1991	2.8
1981	3.4	1982	3.4	1983	3.4	1984	2.0	1985	2.0	1986	2.0	1987	2.0	1988	2.0	1989	2.0	1990	2.0	1991	2.0	1992	2.0
1982	3.3	1983	3.3	1984	1.6	1985	1.6	1986	1.6	1987	1.6	1988	1.6	1989	1.6	1990	1.6	1991	1.6	1992	1.6	1993	1.6

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 2.4.4.

DATE: MARCH 31, 1981

TABLE 2.4.2B

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
HEAVY DUTY GASOLINE POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	332.1	1952	332.1	1953	332.1	1954	332.1	1955	332.1	1956	332.1	1957	332.1	1958	332.1	1959	332.1	1960	332.1	1961	332.1	1962	332.1
1952	329.3	1953	329.3	1954	329.3	1955	329.3	1956	329.3	1957	329.3	1958	329.3	1959	329.3	1960	329.3	1961	329.3	1962	329.3	1963	329.3
1953	326.6	1954	326.6	1955	326.6	1956	326.6	1957	326.6	1958	326.6	1959	326.6	1960	326.6	1961	326.6	1962	326.6	1963	326.6	1964	326.6
1954	323.6	1955	323.6	1956	323.6	1957	323.6	1958	323.6	1959	323.6	1960	323.6	1961	323.6	1962	323.6	1963	323.6	1964	323.6	1965	323.6
1955	320.5	1956	320.5	1957	320.5	1958	320.5	1959	320.5	1960	320.5	1961	320.5	1962	320.5	1963	320.5	1964	320.5	1965	320.5	1966	320.5
1956	317.2	1957	317.2	1958	317.2	1959	317.2	1960	317.2	1961	317.2	1962	317.2	1963	317.2	1964	317.2	1965	317.2	1966	317.2	1967	317.2
1957	313.7	1958	313.7	1959	313.7	1960	313.7	1961	313.7	1962	313.7	1963	313.7	1964	313.7	1965	313.7	1966	313.7	1967	313.7	1968	313.7
1958	309.8	1959	309.8	1960	309.8	1961	309.8	1962	309.8	1963	309.8	1964	309.8	1965	309.8	1966	309.8	1967	309.8	1968	309.8	1969	321.9
1959	305.7	1960	305.7	1961	305.7	1962	305.7	1963	305.7	1964	305.7	1965	305.7	1966	305.7	1967	305.7	1968	305.7	1969	315.2	1970	315.2
1960	301.1	1961	301.1	1962	301.1	1963	301.1	1964	301.1	1965	301.1	1966	301.1	1967	301.1	1968	301.1	1969	308.0	1970	308.0	1971	308.0
1961	296.2	1962	296.2	1963	296.2	1964	296.2	1965	296.2	1966	296.2	1967	296.2	1968	296.2	1969	300.1	1970	300.1	1971	300.1	1972	295.3
1962	290.8	1963	290.8	1964	290.8	1965	290.8	1966	290.8	1967	290.8	1968	290.8	1969	291.5	1970	291.5	1971	291.5	1972	287.1	1973	287.1
1963	284.9	1964	284.9	1965	284.9	1966	284.9	1967	284.9	1968	284.9	1969	282.0	1970	282.0	1971	282.0	1972	278.0	1973	278.0	1974	278.0
1964	278.4	1965	278.4	1966	278.4	1967	278.4	1968	278.4	1969	271.6	1970	271.6	1971	271.6	1972	268.0	1973	268.0	1974	268.0	1975	237.7
1965	271.1	1966	271.1	1967	271.1	1968	271.1	1969	259.9	1970	259.9	1971	259.9	1972	256.9	1973	256.9	1974	256.9	1975	226.5	1976	226.5
1966	263.0	1967	263.0	1968	263.0	1969	246.9	1970	246.9	1971	246.9	1972	244.5	1973	244.5	1974	244.5	1975	214.1	1976	214.1	1977	186.0
1967	254.1	1968	254.1	1969	232.6	1970	232.6	1971	232.6	1972	230.8	1973	230.8	1974	230.8	1975	200.4	1976	200.4	1977	175.6	1978	175.6
1968	244.3	1969	216.8	1970	216.8	1971	216.8	1972	215.7	1973	215.7	1974	215.7	1975	185.3	1976	185.3	1977	164.1	1978	164.1	1979	164.1
1969	199.4	1970	199.4	1971	199.4	1972	199.0	1973	199.0	1974	199.0	1975	168.6	1976	168.6	1977	151.4	1978	151.4	1979	151.4	1980	151.4
1970	190.2	1971	190.2	1972	190.2	1973	190.2	1974	190.2	1975	159.8	1976	159.8	1977	144.7	1978	144.7	1979	144.7	1980	144.7	1981	144.7

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	332.1	1964	332.1	1965	332.1	1966	332.1	1967	332.1	1968	332.1	1969	357.6	1970	357.6	1971	357.6	1972	350.3	1973	350.3	1974	350.3
1964	329.3	1965	329.3	1966	329.3	1967	329.3	1968	329.3	1969	353.2	1970	353.2	1971	353.2	1972	346.1	1973	346.1	1974	346.1	1975	315.8
1965	326.6	1966	326.6	1967	326.6	1968	326.6	1969	348.7	1970	348.7	1971	348.7	1972	341.9	1973	341.9	1974	341.9	1975	311.5	1976	311.5
1966	323.6	1967	323.6	1968	323.6	1969	344.1	1970	344.1	1971	344.1	1972	337.4	1973	337.4	1974	337.4	1975	307.0	1976	307.0	1977	256.7
1967	320.5	1968	320.5	1969	339.1	1970	339.1	1971	339.1	1972	332.6	1973	332.6	1974	332.6	1975	302.3	1976	302.3	1977	253.1	1978	253.1
1968	317.2	1969	333.7	1970	333.7	1971	333.7	1972	327.5	1973	327.5	1974	327.5	1975	297.2	1976	297.2	1977	249.2	1978	249.2	1979	249.2
1969	328.1	1970	328.1	1971	328.1	1972	322.1	1973	322.1	1974	322.1	1975	291.7	1976	291.7	1977	245.0	1978	245.0	1979	245.0	1980	245.0
1970	321.9	1971	321.9	1972	316.2	1973	316.2	1974	316.2	1975	285.9	1976	285.9	1977	240.6	1978	240.6	1979	240.6	1980	240.6	1981	240.6
1971	315.2	1972	309.8	1973	309.8	1974	309.8	1975	279.5	1976	279.5	1977	235.7	1978	235.7	1979	235.7	1980	235.7	1981	235.7	1982	235.7
1972	302.9	1973	302.9	1974	302.9	1975	272.5	1976	272.5	1977	230.4	1978	230.4	1979	230.4	1980	230.4	1981	230.4	1982	230.4	1983	230.4
1973	295.3	1974	295.3	1975	265.0	1976	265.0	1977	224.7	1978	224.7	1979	224.7	1980	224.7	1981	224.7	1982	224.7	1983	224.7	1984	59.5
1974	287.1	1975	256.7	1976	256.7	1977	218.4	1978	218.4	1979	218.4	1980	218.4	1981	218.4	1982	218.4	1983	218.4	1984	56.1	1985	56.1
1975	247.7	1976	247.7	1977	211.5	1978	211.5	1979	211.5	1980	211.5	1981	211.5	1982	211.5	1983	211.5	1984	52.3	1985	52.3	1986	52.3
1976	237.7	1977	203.9	1978	203.9	1979	203.9	1980	203.9	1981	203.9	1982	203.9	1983	203.9	1984	48.2	1985	48.2	1986	48.2	1987	48.2
1977	195.4	1978	195.4	1979	195.4	1980	195.4	1981	195.4	1982	195.4	1983	195.4	1984	43.5	1985	43.5	1986	43.5	1987	43.5	1988	43.5
1978	186.0	1979	186.0	1980	186.0	1981	186.0	1982	186.0	1983	186.0	1984	38.4	1985	38.4	1986	38.4	1987	38.4	1988	38.4	1989	38.4
1979	175.6	1980	175.6	1981	175.6	1982	175.6	1983	175.6	1984	32.7	1985	32.7	1986	32.7	1987	32.7	1988	32.7	1989	32.7	1990	32.7
1980	164.1	1981	164.1	1982	164.1	1983	164.1	1984	26.4	1985	26.4	1986	26.4	1987	26.4	1988	26.4	1989	26.4	1990	26.4	1991	26.4
1981	151.4	1982	151.4	1983	151.4	1984	19.5	1985	19.5	1986	19.5	1987	19.5	1988	19.5	1989	19.5	1990	19.5	1991	19.5	1992	19.5
1982	144.7	1983	144.7	1984	15.8	1985	15.8	1986	15.8	1987	15.8	1988	15.8	1989	15.8	1990	15.8	1991	15.8	1992	15.8	1993	15.8

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 2.4.4.

DATE: MARCH 31, 1981

TABLE 2.4.2C

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
HEAVY DUTY GASOLINE POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	8.9	1952	8.9	1953	8.9	1954	8.9	1955	8.9	1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9
1952	8.9	1953	8.9	1954	8.9	1955	8.9	1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9
1953	8.9	1954	8.9	1955	8.9	1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9
1954	8.9	1955	8.9	1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9
1955	8.9	1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9
1956	8.9	1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9
1957	8.9	1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9
1958	8.9	1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	11.4
1959	8.9	1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4
1960	8.9	1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4
1961	8.9	1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6
1962	8.9	1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	10.5
1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	10.3	1974	10.4
1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	10.2	1974	10.2	1975	10.3
1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	10.0	1974	10.0	1975	10.0	1976	10.2
1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	9.9	1974	9.9	1975	9.9	1976	9.9	1977	8.6
1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	9.7	1974	9.7	1975	9.7	1976	9.7	1977	8.5	1978	8.5
1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	9.5	1974	9.5	1975	9.5	1976	9.5	1977	8.1	1978	8.3	1979	8.3
1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	9.4	1974	9.4	1975	9.4	1976	9.4	1977	8.0	1978	8.0	1979	8.0	1980	5.8
1970	11.4	1971	11.4	1972	12.6	1973	9.4	1974	9.4	1975	9.4	1976	9.4	1977	8.0	1978	8.0	1979	8.0	1980	5.7	1981	5.7

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	8.9	1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	11.2	1974	11.2
1964	8.9	1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	11.1	1974	11.1	1975	11.1
1965	8.9	1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	11.1	1974	11.1	1975	11.1	1976	11.1
1966	8.9	1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	11.0	1974	11.0	1975	11.0	1976	11.0	1977	9.6
1967	8.9	1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	10.9	1974	10.9	1975	10.9	1976	10.9	1977	9.5	1978	9.5
1968	8.9	1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	10.9	1974	10.9	1975	10.9	1976	10.9	1977	9.4	1978	9.4	1979	9.5
1969	11.4	1970	11.4	1971	11.4	1972	12.6	1973	10.9	1974	10.9	1975	10.9	1976	10.8	1977	9.4	1978	9.4	1979	9.4	1980	7.0
1970	11.4	1971	11.4	1972	12.6	1973	10.8	1974	10.8	1975	10.8	1976	10.8	1977	9.3	1978	9.3	1979	9.3	1980	7.0	1981	7.0
1971	11.4	1972	12.6	1973	10.7	1974	10.7	1975	10.7	1976	10.7	1977	9.2	1978	9.2	1979	9.2	1980	6.9	1981	6.9	1982	6.9
1972	12.6	1973	10.7	1974	10.7	1975	10.7	1976	10.7	1977	9.2	1978	9.2	1979	9.2	1980	6.8	1981	6.8	1982	6.8	1983	6.9
1973	10.6	1974	10.6	1975	10.6	1976	10.6	1977	9.2	1978	9.2	1979	9.2	1980	6.7	1981	6.7	1982	6.7	1983	6.8	1984	5.4
1974	10.5	1975	10.5	1976	10.5	1977	9.1	1978	9.1	1979	9.1	1980	6.6	1981	6.6	1982	6.6	1983	6.6	1984	5.3	1985	5.3
1975	10.4	1976	10.4	1977	9.0	1978	9.0	1979	9.0	1980	6.5	1981	6.5	1982	6.5	1983	6.5	1984	5.2	1985	5.2	1986	5.2
1976	10.3	1977	8.9	1978	8.9	1979	8.9	1980	6.5	1981	6.4	1982	6.4	1983	6.4	1984	5.0	1985	5.1	1986	5.1	1987	5.1
1977	8.7	1978	8.7	1979	8.7	1980	6.4	1981	6.4	1982	6.3	1983	6.3	1984	4.8	1985	4.8	1986	5.0	1987	5.0	1988	5.0
1978	8.6	1979	8.6	1980	6.3	1981	6.3	1982	6.3	1983	6.1	1984	4.7	1985	4.7	1986	4.7	1987	4.8	1988	4.8	1989	4.8
1979	8.5	1980	6.1	1981	6.1	1982	6.1	1983	6.1	1984	4.5	1985	4.5	1986	4.5	1987	4.5	1988	4.7	1989	4.7	1990	4.7
1980	5.9	1981	5.9	1982	5.9	1983	5.9	1984	4.5	1985	4.5	1986	4.5	1987	4.5	1988	4.5	1989	4.5	1990	4.5	1991	4.5
1981	5.8	1982	5.8	1983	5.8	1984	4.3	1985	4.3	1986	4.3	1987	4.3	1988	4.3	1989	4.3	1990	4.3	1991	4.3	1992	4.3
1982	5.7	1983	5.7	1984	4.3	1985	4.3	1986	4.3	1987	4.3	1988	4.3	1989	4.3	1990	4.3	1991	4.3	1992	4.3	1993	4.3

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 2.4.4.

DATE: MARCH 31, 1981

TABLE 2.4.3

IDLE EMISSION RATES FOR
CALIFORNIA
HEAVY DUTY GASOLINE POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1969	2.29	0.04
	1969-1971	0.85	0.04
	1972	0.85	0.02
	1973-1974	0.85	0.02
	1975-1976	0.53	0.02
	1977-1979	0.25	0.01
	1980-1983	0.25	0.01
	1984+	0.14	0.03
CO	Pre-1969	22.18	0.53
	1969-1971	6.15	0.28
	1972	6.15	0.27
	1973-1974	6.15	0.27
	1975-1976	5.17	0.27
	1977-1979	6.42	0.28
	1980-1983	6.42	0.28
	1984+	0.70	0.14
NOx	Pre-1969	0.04	0.0
	1969-1971	0.05	0.0
	1972	0.06	0.0
	1973-1974	0.06	0.0
	1975-1976	0.06	0.0
	1977-1979	0.05	0.0
	1980-1983	0.04	0.0
	1984+	0.03	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.4.4

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
CALIFORNIA
HEAVY DUTY GASOLINE POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.128	21000.	0.0	0.	0.
2	0.114	18900.	0.114	21000.	10500.
3	0.097	17200.	0.097	18900.	30450.
4	0.073	15500.	0.073	17200.	48500.
5	0.086	14100.	0.086	15500.	64850.
6	0.088	12600.	0.088	14100.	79650.
7	0.070	11300.	0.070	12600.	93000.
8	0.053	10300.	0.053	11300.	104950.
9	0.041	9400.	0.041	10300.	115750.
10	0.044	8600.	0.044	9400.	125600.
11	0.040	8000.	0.040	8600.	134600.
12	0.031	7300.	0.031	8000.	142900.
13	0.030	6700.	0.030	7300.	150550.
14	0.026	6300.	0.026	6700.	157549.
15	0.021	5900.	0.021	6300.	164049.
16	0.018	5500.	0.018	5900.	170149.
17	0.013	5200.	0.013	5500.	175849.
18	0.009	5000.	0.009	5200.	181199.
19	0.008	5000.	0.008	5000.	186299.
20+	0.010	5000.	0.010	5000.	191299.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 2.4.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
CALIFORNIA
HEAVY DUTY GASOLINE POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) HDGV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) HDGV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.0	1.000	0.0	0.0	0.	0.0	0.0
1984	0.114	1.000	0.114	0.131	21000.	2741.7	0.202
1983	0.097	1.000	0.097	0.112	18900.	2110.1	0.156
1982	0.073	1.000	0.073	0.084	17200.	1449.1	0.107
1981	0.086	1.000	0.086	0.098	15500.	1524.4	0.113
1980	0.088	1.000	0.088	0.101	14100.	1425.5	0.105
1979	0.070	1.000	0.070	0.081	12600.	1018.2	0.075
1978	0.053	1.000	0.053	0.061	11300.	691.7	0.051
1977	0.041	1.000	0.041	0.047	10300.	487.6	0.036
1976	0.044	1.000	0.044	0.050	9400.	473.0	0.035
1975	0.040	1.000	0.040	0.045	8600.	390.4	0.029
1974	0.031	1.000	0.031	0.035	8000.	280.6	0.021
1973	0.030	1.000	0.030	0.034	7300.	250.2	0.018
1972	0.026	1.000	0.026	0.030	6700.	200.4	0.015
1971	0.021	1.000	0.021	0.024	6300.	148.8	0.011
1970	0.018	1.000	0.018	0.020	5900.	119.7	0.009
1969	0.013	1.000	0.013	0.015	5500.	81.3	0.006
1968	0.009	1.000	0.009	0.011	5200.	54.8	0.004
1967	0.008	1.000	0.008	0.009	5000.	47.0	0.003
1966-	0.010	1.000	0.010	0.011	5000.	55.6	0.004
		DAF:	0.872		TFNORM:	13550.2	

WHERE:

A = January 1 registration mix from Table 2.4.4.
B = Fleet sales fractions will always equal 1.000 for HDGVs.
D = Sales weighted fleet mileage accumulation rate from Table 2.4.4, adjusted to January 1.
D(1) = 0
D(MYI) = Annual Miles(MYI-1) , MYI=2,...,20+

DATE: MARCH 31, 1981

TABLE 2.4.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR CALIFORNIA HEAVY DUTY GASOLINE POWERED VEHICLES

* $SCF(s) = EXP(A + B*s + C*s^2)$, HC & CO
$= A + B*s + C*s^2$, NOx

Pol	Model Years	Coefficients A	B	C
HC	Pre-1969	1.60800	-0.09700	0.00083
	1969-1971	1.60800	-0.09700	0.00083
	1972-1976	1.60800	-0.09700	0.00083
	1977-1983	1.60800	-0.09700	0.00083
	1984+	1.60800	-0.09700	0.00083
CO	Pre-1969	1.52000	-0.09800	0.00110
	1969-1971	1.52000	-0.09800	0.00110
	1972 1976	1.52000	-0.09800	0.00110
	1977-1983	1.52000	-0.09800	0.00110
	1984+	1.52000	-0.09800	0.00110
NOx	Pre-1969	0.82400	0.00880	0.0
	1969-1972	0.82400	0.00880	0.0
	1973-1976	0.82400	0.00880	0.0
	1977-1983	0.82400	0.00880	0.0
	1984+	0.82400	0.00880	0.0

* where s = average speed (mph)

DATE: MARCH 31, 1981

TABLE 2.4.7

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
HEAVY DUTY GASOLINE POWERED VEHICLES

* TCF = EXP(TC * (T - TT))

Pol	Model Years	TC Low	TC High
HC	Pre-1969	-0.58903E-02	0.13458E-02
	1969-1971	-0.73870E-02	0.52317E-02
	1972-1976	-0.49759E-02	0.54651E-02
	1977-1983	-0.28549E-02	0.10082E-01
	1984+	-0.74107E-02	0.20546E-01
CO	Pre-1969	-0.20576E-02	0.81720E-02
	1969-1971	-0.45541E-02	0.20268E-01
	1972-1976	-0.42899E-02	0.24127E-01
	1977-1983	-0.13085E-02	0.22061E-01
	1984+	-0.77117E-02	0.27019E-01
NOx	Pre-1969	-0.64315E-02	-0.83986E-02
	1969-1972	-0.55456E-02	-0.86880E-02
	1973-1976	-0.13969E-02	-0.18079E-01
	1977-1983	-0.46352E-03	-0.74889E-02
	1984+	-0.57524E-02	-0.21593E-01

* WHERE:
T = Ambient temperature (Fahrenheit)
TC = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

DATE: MARCH 31, 1981

TABLE 2.5.1

EXHAUST EMISSION RATES FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1975	1.31	0.08	1.71
	1975-1976	0.43	0.05	0.68
	1977	0.51	0.03	0.66
	1978	0.81	0.07	1.16
	1979	0.71	0.05	0.96
	1980-1981	0.39	0.03	0.54
	1982+	0.39	0.03	0.54
CO	Pre-1975	2.71	0.13	3.36
	1975-1976	1.20	0.06	1.50
	1977	1.39	0.08	1.79
	1978	1.46	0.09	1.91
	1979	1.52	0.08	1.92
	1980-1981	1.27	0.05	1.52
	1982+	1.27	0.05	1.52
NOx	Pre-1975	1.46	0.04	1.66
	1975-1976	1.77	0.03	1.92
	1977	1.33	0.07	1.68
	1978	1.62	0.05	1.87
	1979	1.46	0.06	1.76
	1980-1981	1.11	0.06	1.41
	1982+	0.75	0.05	1.00

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.2.1, for the emission standards.

DATE: MARCH 31, 1981

TABLE 2.5.2A

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	2.8	1952	2.8	1953	2.8	1954	2.8	1955	2.8	1956	2.8	1957	2.8	1958	2.8	1959	2.8	1960	2.8	1961	2.8	1962	2.8
1952	2.7	1953	2.7	1954	2.7	1955	2.7	1956	2.7	1957	2.7	1958	2.7	1959	2.7	1960	2.7	1961	2.7	1962	2.7	1963	2.7
1953	2.7	1954	2.7	1955	2.7	1956	2.7	1957	2.7	1958	2.7	1959	2.7	1960	2.7	1961	2.7	1962	2.7	1963	2.7	1964	2.7
1954	2.6	1955	2.6	1956	2.6	1957	2.6	1958	2.6	1959	2.6	1960	2.6	1961	2.6	1962	2.6	1963	2.6	1964	2.6	1965	2.6
1955	2.6	1956	2.6	1957	2.6	1958	2.6	1959	2.6	1960	2.6	1961	2.6	1962	2.6	1963	2.6	1964	2.6	1965	2.6	1966	2.6
1956	2.5	1957	2.5	1958	2.5	1959	2.5	1960	2.5	1961	2.5	1962	2.5	1963	2.5	1964	2.5	1965	2.5	1966	2.5	1967	2.5
1957	2.5	1958	2.5	1959	2.5	1960	2.5	1961	2.5	1962	2.5	1963	2.5	1964	2.5	1965	2.5	1966	2.5	1967	2.5	1968	2.5
1958	2.4	1959	2.4	1960	2.4	1961	2.4	1962	2.4	1963	2.4	1964	2.4	1965	2.4	1966	2.4	1967	2.4	1968	2.4	1969	2.4
1959	2.3	1960	2.3	1961	2.3	1962	2.3	1963	2.3	1964	2.3	1965	2.3	1966	2.3	1967	2.3	1968	2.3	1969	2.3	1970	2.3
1960	2.3	1961	2.3	1962	2.3	1963	2.3	1964	2.3	1965	2.3	1966	2.3	1967	2.3	1968	2.3	1969	2.3	1970	2.3	1971	2.3
1961	2.2	1962	2.2	1963	2.2	1964	2.2	1965	2.2	1966	2.2	1967	2.2	1968	2.2	1969	2.2	1970	2.2	1971	2.2	1972	2.2
1962	2.1	1963	2.1	1964	2.1	1965	2.1	1966	2.1	1967	2.1	1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1
1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.0	1969	2.0	1970	2.0	1971	2.0	1972	2.0	1973	2.0	1974	2.0
1964	1.9	1965	1.9	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	1.9	1971	1.9	1972	1.9	1973	1.9	1974	1.9	1975	0.8
1965	1.8	1966	1.8	1967	1.8	1968	1.8	1969	1.8	1970	1.8	1971	1.8	1972	1.8	1973	1.8	1974	1.8	1975	0.7	1976	0.7
1966	1.7	1967	1.7	1968	1.7	1969	1.7	1970	1.7	1971	1.7	1972	1.7	1973	1.7	1974	1.7	1975	0.7	1976	0.7	1977	0.7
1967	1.6	1968	1.6	1969	1.6	1970	1.6	1971	1.6	1972	1.6	1973	1.6	1974	1.6	1975	0.6	1976	0.6	1977	0.6	1978	1.1
1968	1.5	1969	1.5	1970	1.5	1971	1.5	1972	1.5	1973	1.5	1974	1.5	1975	0.6	1976	0.6	1977	0.6	1978	1.0	1979	0.8
1969	1.4	1970	1.4	1971	1.4	1972	1.4	1973	1.4	1974	1.4	1975	0.5	1976	0.5	1977	0.5	1978	0.9	1979	0.8	1980	0.4
1970	1.3	1971	1.3	1972	1.3	1973	1.3	1974	1.3	1975	0.4	1976	0.4	1977	0.5	1978	0.8	1979	0.7	1980	0.4	1981	0.4

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	2.8	1964	2.8	1965	2.8	1966	2.8	1967	2.8	1968	2.8	1969	2.8	1970	2.8	1971	2.8	1972	2.8	1973	2.8	1974	2.8
1964	2.7	1965	2.7	1966	2.7	1967	2.7	1968	2.7	1969	2.7	1970	2.7	1971	2.7	1972	2.7	1973	2.7	1974	2.7	1975	1.3
1965	2.7	1966	2.7	1967	2.7	1968	2.7	1969	2.7	1970	2.7	1971	2.7	1972	2.7	1973	2.7	1974	2.7	1975	1.3	1976	1.3
1966	2.6	1967	2.6	1968	2.6	1969	2.6	1970	2.6	1971	2.6	1972	2.6	1973	2.6	1974	2.6	1975	1.3	1976	1.3	1977	1.0
1967	2.6	1968	2.6	1969	2.6	1970	2.6	1971	2.6	1972	2.6	1973	2.6	1974	2.6	1975	1.2	1976	1.2	1977	1.0	1978	1.9
1968	2.5	1969	2.5	1970	2.5	1971	2.5	1972	2.5	1973	2.5	1974	2.5	1975	1.2	1976	1.2	1977	1.0	1978	1.9	1979	1.5
1969	2.5	1970	2.5	1971	2.5	1972	2.5	1973	2.5	1974	2.5	1975	1.1	1976	1.1	1977	0.9	1978	1.8	1979	1.4	1980	0.8
1970	2.4	1971	2.4	1972	2.4	1973	2.4	1974	2.4	1975	1.1	1976	1.1	1977	0.9	1978	1.8	1979	1.4	1980	0.8	1981	0.8
1971	2.3	1972	2.3	1973	2.3	1974	2.3	1975	1.1	1976	1.1	1977	0.9	1978	1.7	1979	1.3	1980	0.8	1981	0.8	1982	0.8
1972	2.3	1973	2.3	1974	2.3	1975	1.0	1976	1.0	1977	0.9	1978	1.6	1979	1.3	1980	0.7	1981	0.7	1982	0.7	1983	0.7
1973	2.2	1974	2.2	1975	1.0	1976	1.0	1977	0.8	1978	1.6	1979	1.3	1980	0.7	1981	0.7	1982	0.7	1983	0.7	1984	0.7
1974	2.1	1975	0.9	1976	0.9	1977	0.8	1978	1.5	1979	1.2	1980	0.7	1981	0.7	1982	0.7	1983	0.7	1984	0.7	1985	0.7
1975	0.9	1976	0.9	1977	0.8	1978	1.4	1979	1.1	1980	0.7	1981	0.7	1982	0.7	1983	0.7	1984	0.7	1985	0.7	1986	0.7
1976	0.8	1977	0.7	1978	1.3	1979	1.1	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6
1977	0.7	1978	1.3	1979	1.0	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6
1978	1.2	1979	1.0	1980	0.5	1981	0.5	1982	0.5	1983	0.5	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5
1979	0.9	1980	0.5	1981	0.5	1982	0.5	1983	0.5	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5
1980	0.5	1981	0.5	1982	0.5	1983	0.5	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5
1981	0.4	1982	0.4	1983	0.4	1984	0.4	1985	0.4	1986	0.4	1987	0.4	1988	0.4	1989	0.4	1990	0.4	1991	0.4	1992	0.4
1982	0.4	1983	0.4	1984	0.4	1985	0.4	1986	0.4	1987	0.4	1988	0.4	1989	0.4	1990	0.4	1991	0.4	1992	0.4	1993	0.4

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.5.4A.

DATE: MARCH 31, 1981

TABLE 2.5.2B

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	5.1	1952	5.1	1953	5.1	1954	5.1	1955	5.1	1956	5.1	1957	5.1	1958	5.1	1959	5.1	1960	5.1	1961	5.1	1962	5.1
1952	5.0	1953	5.0	1954	5.0	1955	5.0	1956	5.0	1957	5.0	1958	5.0	1959	5.0	1960	5.0	1961	5.0	1962	5.0	1963	5.0
1953	4.9	1954	4.9	1955	4.9	1956	4.9	1957	4.9	1958	4.9	1959	4.9	1960	4.9	1961	4.9	1962	4.9	1963	4.9	1964	4.9
1954	4.9	1955	4.9	1956	4.9	1957	4.9	1958	4.9	1959	4.9	1960	4.9	1961	4.9	1962	4.9	1963	4.9	1964	4.9	1965	4.9
1955	4.8	1956	4.8	1957	4.8	1958	4.8	1959	4.8	1960	4.8	1961	4.8	1962	4.8	1963	4.8	1964	4.8	1965	4.8	1966	4.8
1956	4.7	1957	4.7	1958	4.7	1959	4.7	1960	4.7	1961	4.7	1962	4.7	1963	4.7	1964	4.7	1965	4.7	1966	4.7	1967	4.7
1957	4.6	1958	4.6	1959	4.6	1960	4.6	1961	4.6	1962	4.6	1963	4.6	1964	4.6	1965	4.6	1966	4.6	1967	4.6	1968	4.6
1958	4.5	1959	4.5	1960	4.5	1961	4.5	1962	4.5	1963	4.5	1964	4.5	1965	4.5	1966	4.5	1967	4.5	1968	4.5	1969	4.5
1959	4.4	1960	4.4	1961	4.4	1962	4.4	1963	4.4	1964	4.4	1965	4.4	1966	4.4	1967	4.4	1968	4.4	1969	4.4	1970	4.4
1960	4.2	1961	4.2	1962	4.2	1963	4.2	1964	4.2	1965	4.2	1966	4.2	1967	4.2	1968	4.2	1969	4.2	1970	4.2	1971	4.2
1961	4.1	1962	4.1	1963	4.1	1964	4.1	1965	4.1	1966	4.1	1967	4.1	1968	4.1	1969	4.1	1970	4.1	1971	4.1	1972	4.1
1962	4.0	1963	4.0	1964	4.0	1965	4.0	1966	4.0	1967	4.0	1968	4.0	1969	4.0	1970	4.0	1971	4.0	1972	4.0	1973	4.0
1963	3.8	1964	3.8	1965	3.8	1966	3.8	1967	3.8	1968	3.8	1969	3.8	1970	3.8	1971	3.8	1972	3.8	1973	3.8	1974	3.8
1964	3.7	1965	3.7	1966	3.7	1967	3.7	1968	3.7	1969	3.7	1970	3.7	1971	3.7	1972	3.7	1973	3.7	1974	3.7	1975	1.7
1965	3.5	1966	3.5	1967	3.5	1968	3.5	1969	3.5	1970	3.5	1971	3.5	1972	3.5	1973	3.5	1974	3.5	1975	1.6	1976	1.6
1966	3.4	1967	3.4	1968	3.4	1969	3.4	1970	3.4	1971	3.4	1972	3.4	1973	3.4	1974	3.4	1975	1.5	1976	1.5	1977	1.8
1967	3.2	1968	3.2	1969	3.2	1970	3.2	1971	3.2	1972	3.2	1973	3.2	1974	3.2	1975	1.4	1976	1.4	1977	1.7	1978	1.8
1968	3.0	1969	3.0	1970	3.0	1971	3.0	1972	3.0	1973	3.0	1974	3.0	1975	1.3	1976	1.3	1977	1.6	1978	1.7	1979	1.7
1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.9	1974	2.9	1975	1.3	1976	1.3	1977	1.5	1978	1.6	1979	1.6	1980	1.3
1970	2.7	1971	2.7	1972	2.7	1973	2.7	1974	2.7	1975	1.2	1976	1.2	1977	1.4	1978	1.5	1979	1.5	1980	1.3	1981	1.3

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	5.1	1971	5.1	1972	5.1	1973	5.1	1974	5.1
1964	5.0	1965	5.0	1966	5.0	1967	5.0	1968	5.0	1969	5.0	1970	5.0	1971	5.0	1972	5.0	1973	5.0	1974	5.0	1975	2.3
1965	4.9	1966	4.9	1967	4.9	1968	4.9	1969	4.9	1970	4.9	1971	4.9	1972	4.9	1973	4.9	1974	4.9	1975	2.2	1976	2.2
1966	4.9	1967	4.9	1968	4.9	1969	4.9	1970	4.9	1971	4.9	1972	4.9	1973	4.9	1974	4.9	1975	2.2	1976	2.2	1977	2.7
1967	4.8	1968	4.8	1969	4.8	1970	4.8	1971	4.8	1972	4.8	1973	4.8	1974	4.8	1975	2.2	1976	2.2	1977	2.7	1978	2.9
1968	4.7	1969	4.7	1970	4.7	1971	4.7	1972	4.7	1973	4.7	1974	4.7	1975	2.1	1976	2.1	1977	2.6	1978	2.8	1979	2.7
1969	4.6	1970	4.6	1971	4.6	1972	4.6	1973	4.6	1974	4.6	1975	2.1	1976	2.1	1977	2.5	1978	2.8	1979	2.7	1980	2.0
1970	4.5	1971	4.5	1972	4.5	1973	4.5	1974	4.5	1975	2.0	1976	2.0	1977	2.5	1978	2.7	1979	2.6	1980	1.9	1981	1.9
1971	4.4	1972	4.4	1973	4.4	1974	4.4	1975	2.0	1976	2.0	1977	2.4	1978	2.6	1979	2.5	1980	1.9	1981	1.9	1982	1.9
1972	4.2	1973	4.2	1974	4.2	1975	1.9	1976	1.9	1977	2.3	1978	2.5	1979	2.5	1980	1.9	1981	1.9	1982	1.9	1983	1.9
1973	4.1	1974	4.1	1975	1.8	1976	1.8	1977	2.3	1978	2.4	1979	2.4	1980	1.8	1981	1.8	1982	1.8	1983	1.8	1984	1.8
1974	4.0	1975	1.8	1976	1.8	1977	2.2	1978	2.3	1979	2.3	1980	1.8	1981	1.8	1982	1.8	1983	1.8	1984	1.8	1985	1.8
1975	1.7	1976	1.7	1977	2.1	1978	2.2	1979	2.2	1980	1.7	1981	1.7	1982	1.7	1983	1.7	1984	1.7	1985	1.7	1986	1.7
1976	1.7	1977	2.0	1978	2.1	1979	2.1	1980	1.6	1981	1.6	1982	1.6	1983	1.6	1984	1.6	1985	1.6	1986	1.6	1987	1.6
1977	1.9	1978	2.0	1979	2.0	1980	1.6	1981	1.6	1982	1.6	1983	1.6	1984	1.6	1985	1.6	1986	1.6	1987	1.6	1988	1.6
1978	1.9	1979	1.9	1980	1.5	1981	1.5	1982	1.5	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5
1979	1.8	1980	1.5	1981	1.5	1982	1.5	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5	1990	1.5
1980	1.4	1981	1.4	1982	1.4	1983	1.4	1984	1.4	1985	1.4	1986	1.4	1987	1.4	1988	1.4	1989	1.4	1990	1.4	1991	1.4
1981	1.3	1982	1.3	1983	1.3	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3	1991	1.3	1992	1.3
1982	1.3	1983	1.3	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3	1991	1.3	1992	1.3	1993	1.3

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.5.4A.

DATE: MARCH 31, 1981

TABLE 2.5.2C

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	2.2	1952	2.2	1953	2.2	1954	2.2	1955	2.2	1956	2.2	1957	2.2	1958	2.2	1959	2.2	1960	2.2	1961	2.2	1962	2.2
1952	2.2	1953	2.2	1954	2.2	1955	2.2	1956	2.2	1957	2.2	1958	2.2	1959	2.2	1960	2.2	1961	2.2	1962	2.2	1963	2.2
1953	2.1	1954	2.1	1955	2.1	1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1
1954	2.1	1955	2.1	1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1	1965	2.1
1955	2.1	1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1	1965	2.1	1966	2.1
1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1	1965	2.1	1966	2.1	1967	2.1
1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.0
1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.0	1969	2.0
1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.0	1969	2.0	1970	2.0
1960	1.9	1961	1.9	1962	1.9	1963	1.9	1964	1.9	1965	1.9	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	1.9	1971	1.9
1961	1.9	1962	1.9	1963	1.9	1964	1.9	1965	1.9	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	1.9	1971	1.9	1972	1.9
1962	1.9	1963	1.9	1964	1.9	1965	1.9	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	1.9	1971	1.9	1972	1.9	1973	1.9
1963	1.8	1964	1.8	1965	1.8	1966	1.8	1967	1.8	1968	1.8	1969	1.8	1970	1.8	1971	1.8	1972	1.8	1973	1.8	1974	1.8
1964	1.8	1965	1.8	1966	1.8	1967	1.8	1968	1.8	1969	1.8	1970	1.8	1971	1.8	1972	1.8	1973	1.8	1974	1.8	1975	2.0
1965	1.7	1966	1.7	1967	1.7	1968	1.7	1969	1.7	1970	1.7	1971	1.7	1972	1.7	1973	1.7	1974	1.7	1975	2.0	1976	2.0
1966	1.7	1967	1.7	1968	1.7	1969	1.7	1970	1.7	1971	1.7	1972	1.7	1973	1.7	1974	1.7	1975	1.9	1976	1.9	1977	1.7
1967	1.6	1968	1.6	1969	1.6	1970	1.6	1971	1.6	1972	1.6	1973	1.6	1974	1.6	1975	1.9	1976	1.9	1977	1.6	1978	1.8
1968	1.6	1969	1.6	1970	1.6	1971	1.6	1972	1.6	1973	1.6	1974	1.6	1975	1.8	1976	1.8	1977	1.5	1978	1.7	1979	1.6
1969	1.5	1970	1.5	1971	1.5	1972	1.5	1973	1.5	1974	1.5	1975	1.8	1976	1.8	1977	1.4	1978	1.7	1979	1.5	1980	1.2
1970	1.5	1971	1.5	1972	1.5	1973	1.5	1974	1.5	1975	1.8	1976	1.8	1977	1.3	1978	1.6	1979	1.5	1980	1.1	1981	1.1

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	2.2	1964	2.2	1965	2.2	1966	2.2	1967	2.2	1968	2.2	1969	2.2	1970	2.2	1971	2.2	1972	2.2	1973	2.2	1974	2.2
1964	2.2	1965	2.2	1966	2.2	1967	2.2	1968	2.2	1969	2.2	1970	2.2	1971	2.2	1972	2.2	1973	2.2	1974	2.2	1975	2.3
1965	2.1	1966	2.1	1967	2.1	1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.3	1976	2.3
1966	2.1	1967	2.1	1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.2	1976	2.2	1977	2.5
1967	2.1	1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.2	1976	2.2	1977	2.4	1978	2.4
1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.2	1976	2.2	1977	2.4	1978	2.4	1979	2.4
1969	2.0	1970	2.0	1971	2.0	1972	2.0	1973	2.0	1974	2.0	1975	2.2	1976	2.2	1977	2.3	1978	2.3	1979	2.3	1980	2.0
1970	2.0	1971	2.0	1972	2.0	1973	2.0	1974	2.0	1975	2.2	1976	2.2	1977	2.3	1978	2.3	1979	2.3	1980	1.9	1981	1.9
1971	2.0	1972	2.0	1973	2.0	1974	2.0	1975	2.2	1976	2.2	1977	2.2	1978	2.3	1979	2.2	1980	1.9	1981	1.9	1982	1.4
1972	1.9	1973	1.9	1974	1.9	1975	2.1	1976	2.1	1977	2.2	1978	2.2	1979	2.2	1980	1.8	1981	1.8	1982	1.3	1983	1.3
1973	1.9	1974	1.9	1975	2.1	1976	2.1	1977	2.1	1978	2.2	1979	2.1	1980	1.8	1981	1.8	1982	1.3	1983	1.3	1984	1.3
1974	1.9	1975	2.1	1976	2.1	1977	2.0	1978	2.1	1979	2.0	1980	1.7	1981	1.7	1982	1.2	1983	1.2	1984	1.2	1985	1.2
1975	2.0	1976	2.0	1977	1.9	1978	2.1	1979	2.0	1980	1.6	1981	1.6	1982	1.2	1983	1.2	1984	1.2	1985	1.2	1986	1.2
1976	2.0	1977	1.9	1978	2.0	1979	1.9	1980	1.6	1981	1.6	1982	1.1	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1
1977	1.8	1978	1.9	1979	1.8	1980	1.5	1981	1.5	1982	1.1	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1	1988	1.1
1978	1.9	1979	1.8	1980	1.4	1981	1.4	1982	1.0	1983	1.0	1984	1.0	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0
1979	1.7	1980	1.3	1981	1.3	1982	0.9	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9
1980	1.3	1981	1.3	1982	0.9	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9	1991	0.9
1981	1.2	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8
1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8	1993	0.8

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.5.4A.

DATE: MARCH 31, 1981

TABLE 2.5.3

IDLE EMISSION RATES FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1975	0.14	0.01
	1975-1976	0.03	0.0
	1977	0.04	0.0
	1978	0.06	0.0
	1979	0.05	0.0
	1980-1981	0.03	0.0
	1982+	0.03	0.0
CO	Pre-1975	0.23	0.01
	1975-1976	0.14	0.01
	1977	0.16	0.01
	1978	0.17	0.01
	1979	0.18	0.01
	1980-1981	0.15	0.01
	1982+	0.15	0.01
NOx	Pre-1975	0.13	0.0
	1975-1976	0.22	0.0
	1977	0.17	0.01
	1978	0.20	0.01
	1979	0.18	0.01
	1980-1981	0.14	0.01
	1982+	0.09	0.01

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.5.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.072	14400.	0.024	14400.	1800.
2	0.101	13900.	0.101	14275.	10784.
3	0.092	13400.	0.092	13775.	24809.
4	0.071	12800.	0.071	13250.	38331.
5	0.092	12300.	0.092	12675.	51284.
6	0.103	11800.	0.103	12175.	63709.
7	0.089	11200.	0.089	11650.	75631.
8	0.071	10700.	0.071	11075.	86984.
9	0.066	10200.	0.066	10575.	97809.
10	0.059	9600.	0.059	10050.	108131.
11	0.048	9100.	0.048	9475.	117884.
12	0.035	8600.	0.035	8975.	127109.
13	0.030	8000.	0.030	8450.	135831.
14	0.023	7500.	0.023	7875.	143984.
15	0.015	7000.	0.015	7375.	151609.
16	0.010	6400.	0.010	6850.	158731.
17	0.005	5900.	0.005	6275.	165284.
18	0.003	5400.	0.003	5775.	171309.
19	0.002	4900.	0.002	5275.	176833.
20+	0.015	4300.	0.015	4750.	181855.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 2.5.4B

FLEET SALES FRACTION* FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED VEHICLES

Model Years	Sales Fraction
Pre-1975	0.0
1975	0.002
1976	0.003
1977	0.005
1978	0.009
1979	0.028
1980	0.034
1981	0.047
1982	0.075
1983	0.089
1984	0.095
1985	0.114
1986	0.138
1987	0.165
1988	0.176
1989	0.187
1990	0.197
1991+	0.200

* The estimated fraction of the light duty vehicle model year fleet which is diesel powered.

DATE: MARCH 31, 1981

TABLE 2.5.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) LDV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDDV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.024	0.114	0.003	0.073	14400.	1056.2	0.079
1984	0.101	0.095	0.010	0.257	14275.	3663.0	0.274
1983	0.092	0.089	0.008	0.219	13775.	3022.6	0.226
1982	0.071	0.075	0.005	0.142	13250.	1883.5	0.141
1981	0.092	0.047	0.004	0.115	12675.	1460.8	0.109
1980	0.103	0.034	0.003	0.093	12175.	1137.0	0.085
1979	0.089	0.028	0.002	0.067	11650.	775.4	0.058
1978	0.071	0.009	0.001	0.017	11075.	190.0	0.014
1977	0.066	0.005	0.000	0.009	10575.	93.3	0.007
1976	0.059	0.003	0.000	0.005	10050.	47.7	0.004
1975	0.048	0.002	0.000	0.003	9475.	24.2	0.002
1974	0.035	0.0	0.0	0.0	8975.	0.0	0.0
1973	0.030	0.0	0.0	0.0	8450.	0.0	0.0
1972	0.023	0.0	0.0	0.0	7875.	0.0	0.0
1971	0.015	0.0	0.0	0.0	7375.	0.0	0.0
1970	0.010	0.0	0.0	0.0	6850.	0.0	0.0
1969	0.005	0.0	0.0	0.0	6275.	0.0	0.0
1968	0.003	0.0	0.0	0.0	5775.	0.0	0.0
1967	0.002	0.0	0.0	0.0	5275.	0.0	0.0
1966-	0.015	0.0	0.0	0.0	4750.	0.0	0.0
		DAF:	0.037		TFNORM:	13353.6	

WHERE:
- A = January 1 registration mix from Table 2.5.4A.
- B = Fleet sales fractions from Table 2.5.4B.
- D = Sales weighted fleet mileage accumulation rate from Table 2.5.4A, adjusted to January 1.
- D(1) = Annual Miles(1)
- D(MYI) = .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 2.5.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED VEHICLES

* $SCF(s,sadj) = SF(s)/SF(sadj)$

$$SF(s) = EXP(A + B*s + C*s^2)$$

Pol	Model Years	Coefficients A	B	C
HC	All	0.90900	-0.05500	0.00044
CO	All	1.37520	-0.08800	0.00091
NOx	All	0.66800	-0.04800	0.00071

Where:
s = average speed (mph)
sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w.
[$1/sadj = (w+x)/26 + (1-w-x)/16$].

DATE: MARCH 31, 1981

TABLE 2.5.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED VEHICLES

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1975	0.0	0.0	0.0	0.0	0.0	0.0
	1975-1976	0.0	0.0	0.0	0.0	0.0	0.0
	1977	0.0	0.0	0.0	0.0	0.0	0.0
	1978	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980+	0.0	0.0	0.0	0.0	0.0	0.0
CO	Pre-1975	0.0	0.0	0.0	0.0	0.0	0.0
	1975-1976	0.0	0.0	0.0	0.0	0.0	0.0
	1977	0.0	0.0	0.0	0.0	0.0	0.0
	1978	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980+	0.0	0.0	0.0	0.0	0.0	0.0
NOx	Pre-1975	0.0	0.0	0.0	0.0	0.0	0.0
	1975-1976	0.0	0.0	0.0	0.0	0.0	0.0
	1977	0.0	0.0	0.0	0.0	0.0	0.0
	1978	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980-1981	0.0	0.0	0.0	0.0	0.0	0.0
	1982+	0.0	0.0	0.0	0.0	0.0	0.0

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 2.5.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

NOTE: This table indicates diesel emissions are insensitive to temperature.

DATE: MARCH 31, 1981

TABLE 2.5.7B

NORMALIZED BAG FRACTIONS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED VEHICLES

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1975	1.209	0.071	1.073	0.056	0.703	0.064	1.000	0.061
	1975-1976	1.209	0.136	1.073	0.111	0.703	0.110	1.000	0.116
	1977	1.209	0.068	1.073	0.053	0.703	0.062	1.000	0.059
	1978	1.209	0.101	1.073	0.081	0.703	0.085	1.000	0.086
	1979	1.209	0.082	1.073	0.065	0.703	0.072	1.000	0.070
	1980+	1.209	0.090	1.073	0.072	0.703	0.077	1.000	0.077
CO	Pre-1975	1.199	0.060	0.935	0.042	0.974	0.051	1.000	0.048
	1975-1976	1.199	0.062	0.935	0.044	0.974	0.053	1.000	0.050
	1977	1.199	0.071	0.935	0.051	0.974	0.060	1.000	0.058
	1978	1.199	0.076	0.935	0.055	0.974	0.064	1.000	0.062
	1979	1.199	0.065	0.935	0.046	0.974	0.055	1.000	0.052
	1980+	1.199	0.049	0.935	0.034	0.974	0.042	1.000	0.039
NOx	Pre-1975	1.068	0.026	0.981	0.029	0.985	0.026	1.000	0.028
	1975-1976	1.068	0.015	0.981	0.018	0.985	0.015	1.000	0.017
	1977	1.068	0.053	0.981	0.054	0.985	0.050	1.000	0.053
	1978	1.068	0.030	0.981	0.032	0.985	0.029	1.000	0.031
	1979	1.068	0.040	0.981	0.042	0.985	0.039	1.000	0.041
	1980-1981	1.068	0.054	0.981	0.055	0.985	0.052	1.000	0.054
	1982+	1.068	0.067	0.981	0.068	0.985	0.064	1.000	0.067

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF

TERM1 = W *TCF(1)*(B1+D1*M)

TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)

TERM3 = X *TCF(3)*(B3+D3*M)

DENOM = B0 + D0*M

SCF = Speed correction factor for pollutant & model year

W = Fraction of VMT in the cold start mode

X = Fraction of VMT in the hot start mode

TCF(b) = Temperature correction factor for pollutant, model year; for test segment b

M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.6.1

EXHAUST EMISSION RATES FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED TRUCKS

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1979	0.69	0.06	0.99
	1979-1980	0.57	0.04	0.77
	1981+	0.46	0.03	0.61
CO	Pre-1979	1.98	0.09	2.43
	1979-1980	1.61	0.07	1.96
	1981+	1.27	0.05	1.52
NOx	Pre-1979	1.68	0.06	1.98
	1979-1980	1.62	0.06	1.92
	1981-1982	1.43	0.06	1.73
	1983+	1.05	0.06	1.35

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.2.2, for the emission standards.

DATE: MARCH 31, 1981

TABLE 2.6.2A

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED TRUCKS
HC

January 1 of Calendar Year

1978		1979		1980		1981		1982		1983		1984		1985	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1959	-	1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-
1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-
1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-
1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-
1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-
1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-
1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-
1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	1.2
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	1.2	1979	0.9
1973	-	1974	-	1975	-	1976	-	1977	-	1978	1.1	1979	0.8	1980	0.8
1974	-	1975	-	1976	-	1977	-	1978	1.0	1979	0.8	1980	0.8	1981	0.6
1975	-	1976	-	1977	-	1978	0.9	1979	0.7	1980	0.7	1981	0.6	1982	0.6
1976	-	1977	-	1978	0.9	1979	0.7	1980	0.7	1981	0.5	1982	0.5	1983	0.5
1977	-	1978	0.8	1979	0.6	1980	0.6	1981	0.5	1982	0.5	1983	0.5	1984	0.5
1978	0.7	1979	0.6	1980	0.6	1981	0.5	1982	0.5	1983	0.5	1984	0.5	1985	0.5

January 1 of Calendar Year

1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	1.6
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	1.6	1979	1.1
1973	-	1974	-	1975	-	1976	-	1977	-	1978	1.5	1979	1.1	1980	1.1
1974	-	1975	-	1976	-	1977	-	1978	1.5	1979	1.1	1980	1.1	1981	0.9
1975	-	1976	-	1977	-	1978	1.5	1979	1.1	1980	1.1	1981	0.8	1982	0.8
1976	-	1977	-	1978	1.4	1979	1.1	1980	1.1	1981	0.8	1982	0.8	1983	0.8
1977	-	1978	1.4	1979	1.0	1980	1.0	1981	0.8	1982	0.8	1983	0.8	1984	0.8
1978	1.3	1979	1.0	1980	1.0	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8
1979	0.9	1980	0.9	1981	0.7	1982	0.7	1983	0.7	1984	0.7	1985	0.7	1986	0.7
1980	0.9	1981	0.7	1982	0.7	1983	0.7	1984	0.7	1985	0.7	1986	0.7	1987	0.7
1981	0.7	1982	0.7	1983	0.7	1984	0.7	1985	0.7	1986	0.7	1987	0.7	1988	0.7
1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6
1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6
1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5
1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5	1992	0.5
1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5	1992	0.5	1993	0.5

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.6.4A.

DATE: MARCH 31, 1981

TABLE 2.6.2B

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED TRUCKS
CO

January 1 of Calendar Year

1978		1979		1980		1981		1982		1983		1984		1985	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1959	-	1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-
1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-
1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-
1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-
1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-
1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-
1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-
1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.8
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.7	1979	2.2
1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.6	1979	2.1	1980	2.1
1974	-	1975	-	1976	-	1977	-	1978	2.5	1979	2.0	1980	2.0	1981	1.5
1975	-	1976	-	1977	-	1978	2.4	1979	1.9	1980	1.9	1981	1.5	1982	1.5
1976	-	1977	-	1978	2.2	1979	1.8	1980	1.8	1981	1.4	1982	1.4	1983	1.4
1977	-	1978	2.1	1979	1.7	1980	1.7	1981	1.3	1982	1.3	1983	1.3	1984	1.3
1978	2.0	1979	1.6	1980	1.6	1981	1.3	1982	1.3	1983	1.3	1984	1.3	1985	1.3

January 1 of Calendar Year

1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.3
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.3	1979	2.6
1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.2	1979	2.6	1980	2.6
1974	-	1975	-	1976	-	1977	-	1978	3.2	1979	2.5	1980	2.5	1981	1.9
1975	-	1976	-	1977	-	1978	3.1	1979	2.5	1980	2.5	1981	1.9	1982	1.9
1976	-	1977	-	1978	3.1	1979	2.5	1980	2.5	1981	1.9	1982	1.9	1983	1.9
1977	-	1978	3.0	1979	2.4	1980	2.4	1981	1.8	1982	1.8	1983	1.8	1984	1.8
1978	2.9	1979	2.3	1980	2.3	1981	1.8	1982	1.8	1983	1.8	1984	1.8	1985	1.8
1979	2.3	1980	2.3	1981	1.7	1982	1.7	1983	1.7	1984	1.7	1985	1.7	1986	1.7
1980	2.2	1981	1.7	1982	1.7	1983	1.7	1984	1.7	1985	1.7	1986	1.7	1987	1.7
1981	1.6	1982	1.6	1983	1.6	1984	1.6	1985	1.6	1986	1.6	1987	1.6	1988	1.6
1982	1.5	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5
1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5	1990	1.5
1984	1.4	1985	1.4	1986	1.4	1987	1.4	1988	1.4	1989	1.4	1990	1.4	1991	1.4
1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3	1991	1.3	1992	1.3
1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3	1991	1.3	1992	1.3	1993	1.3

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.6.4A.

DATE: MARCH 31, 1981

TABLE 2.6.2C

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED TRUCKS
NOx

January 1 of Calendar Year

1978		1979		1980		1981		1982		1983		1984		1985	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1959	-	1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-
1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-
1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-
1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-
1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-
1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-
1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-
1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.2
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.2	1979	2.1
1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.1	1979	2.0	1980	2.0
1974	-	1975	-	1976	-	1977	-	1978	2.0	1979	2.0	1980	2.0	1981	1.8
1975	-	1976	-	1977	-	1978	1.9	1979	1.9	1980	1.9	1981	1.7	1982	1.7
1976	-	1977	-	1978	1.8	1979	1.8	1980	1.8	1981	1.6	1982	1.6	1983	1.2
1977	-	1978	1.8	1979	1.7	1980	1.7	1981	1.5	1982	1.5	1983	1.1	1984	1.1
1978	1.7	1979	1.6	1980	1.6	1981	1.4	1982	1.4	1983	1.1	1984	1.1	1985	1.1

January 1 of Calendar Year

1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.6
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.5	1979	2.5
1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.5	1979	2.5	1980	2.5
1974	-	1975	-	1976	-	1977	-	1978	2.5	1979	2.4	1980	2.4	1981	2.2
1975	-	1976	-	1977	-	1978	2.4	1979	2.4	1980	2.4	1981	2.2	1982	2.2
1976	-	1977	-	1978	2.4	1979	2.3	1980	2.3	1931	2.2	1982	2.2	1983	1.8
1977	-	1978	2.4	1979	2.3	1980	2.3	1981	2.1	1982	2.1	1983	1.7	1984	1.7
1978	2.3	1979	2.2	1980	2.2	1981	2.0	1982	2.0	1983	1.7	1984	1.7	1985	1.7
1979	2.2	1980	2.2	1981	2.0	1982	2.0	1983	1.6	1984	1.6	1985	1.6	1986	1.6
1980	2.1	1981	1.9	1982	1.9	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5
1981	1.8	1982	1.8	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5
1982	1.8	1983	1.4	1984	1.4	1985	1.4	1986	1.4	1987	1.4	1988	1.4	1989	1.4
1983	1.3	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3
1984	1.2	1985	1.2	1986	1.2	1987	1.2	1988	1.2	1989	1.2	1990	1.2	1991	1.2
1985	1.1	1986	1.1	1987	1.1	1988	1.1	1989	1.1	1990	1.1	1991	1.1	1992	1.1
1986	1.1	1987	1.1	1988	1.1	1989	1.1	1990	1.1	1991	1.1	1992	1.1	1993	1.1

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.6.4A.

DATE: MARCH 31, 1981

TABLE 2.6.3

IDLE EMISSION RATES FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED TRUCKS

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1979	0.08	0.01
	1979-1980	0.06	0.0
	1981+	0.04	0.0
CO	Pre-1979	0.31	0.01
	1979-1980	0.23	0.01
	1981+	0.15	0.01
NOx	Pre-1979	0.26	0.01
	1979-1980	0.25	0.01
	1981-1982	0.18	0.01
	1983+	0.13	0.01

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.6.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED TRUCKS

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per truck *	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.097	15700.	0.032	15700.	1962.
2	0.094	15100.	0.094	15550.	11756.
3	0.085	14600.	0.085	14975.	27009.
4	0.061	14000.	0.061	14450.	41731.
5	0.091	13000.	0.091	13750.	55869.
6	0.099	12100.	0.099	12775.	69122.
7	0.076	11000.	0.076	11825.	81441.
8	0.060	9700.	0.060	10675.	92709.
9	0.044	9300.	0.044	9600.	102762.
10	0.048	7400.	0.048	8825.	112115.
11	0.046	6800.	0.046	7250.	120031.
12	0.033	6100.	0.033	6625.	126978.
13	0.035	5500.	0.035	5950.	133256.
14	0.033	5000.	0.033	5375.	138909.
15	0.026	4600.	0.026	4900.	144037.
16	0.021	4200.	0.021	4500.	148737.
17	0.015	3800.	0.015	4100.	153037.
18	0.011	3100.	0.011	3625.	156927.
19	0.010	3100.	0.010	3100.	160224.
20+	0.013	3100.	0.013	3100.	163324.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 2.6.4B

FLEET SALES FRACTION* FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED TRUCKS

Model Years	Sales Fraction
Pre-1978	0.0
1978	0.009
1979	0.028
1980	0.034
1981	0.047
1982	0.075
1983	0.089
1984	0.095
1985	0.114
1986	0.138
1987	0.165
1988	0.176
1989	0.187
1990	0.197
1991+	0.200

* The estimated fraction of the light duty truck model year fleet which is diesel powered.

DATE: MARCH 31, 1981

TABLE 2.6.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED TRUCKS
JANUARY 1, 1985

Model Years	(A) LDT1 Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDDT Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.032	0.114	0.004	0.105	15700.	1641.8	0.113
1984	0.094	0.095	0.009	0.255	15550.	3968.6	0.273
1983	0.085	0.089	0.008	0.216	14975.	3239.5	0.223
1982	0.061	0.075	0.005	0.131	14450.	1888.6	0.130
1981	0.091	0.047	0.004	0.121	13750.	1670.0	0.115
1980	0.099	0.034	0.003	0.096	12775.	1226.2	0.084
1979	0.076	0.028	0.002	0.060	11825.	714.4	0.049
1978	0.060	0.009	0.001	0.015	10675.	163.6	0.011
1977	0.044	0.0	0.0	0.0	9600.	0.0	0.0
1976	0.048	0.0	0.0	0.0	8825.	0.0	0.0
1975	0.046	0.0	0.0	0.0	7250.	0.0	0.0
1974	0.033	0.0	0.0	0.0	6625.	0.0	0.0
1973	0.035	0.0	0.0	0.0	5950.	0.0	0.0
1972	0.033	0.0	0.0	0.0	5375.	0.0	0.0
1971	0.026	0.0	0.0	0.0	4900.	0.0	0.0
1970	0.021	0.0	0.0	0.0	4500.	0.0	0.0
1969	0.015	0.0	0.0	0.0	4100.	0.0	0.0
1968	0.011	0.0	0.0	0.0	3625.	0.0	0.0
1967	0.010	0.0	0.0	0.0	3100.	0.0	0.0
1966-	0.013	0.0	0.0	0.0	3100.	0.0	0.0
			DAF: 0.035		TFNORM:	14512.8	

WHERE:

A = January 1 registration mix from Table 2.6.4A.
B = Fleet sales fractions from Table 2.6.4B.
D = Sales weighted fleet mileage accumulation rate from Table 2.6.4A, adjusted to January 1.
D(1) = Annual Miles(1)
D(MYI) = .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 2.6.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED TRUCKS

* $SCF(s,sadj) = SF(s)/SF(sadj)$

$SF(s) = EXP(A + B*s + C*s^2)$

Pol	Model Years	Coefficients A	B	C
HC	All	0.90900	-0.05500	0.00044
CO	All	1.37520	-0.08800	0.00091
NOx	All	0.66800	-0.04800	0.00071

Where:
s = average speed (mph)
sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w.
[$1/sadj = (w+x)/26 + (1-w-x)/16$].

DATE: MARCH 31, 1981

TABLE 2.6.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED TRUCKS

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1979	0.0	0.0	0.0	0.0	0.0	0.0
	1979+	0.0	0.0	0.0	0.0	0.0	0.0
CO	Pre-1979	0.0	0.0	0.0	0.0	0.0	0.0
	1979+	0.0	0.0	0.0	0.0	0.0	0.0
NOx	Pre-1979	0.0	0.0	0.0	0.0	0.0	0.0
	1979-1980	0.0	0.0	0.0	0.0	0.0	0.0
	1981-1982	0.0	0.0	0.0	0.0	0.0	0.0
	1983+	0.0	0.0	0.0	0.0	0.0	0.0

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 2.6.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

NOTE: This table indicates diesel emissions are insensitive to temperature.

DATE: MARCH 31, 1981

TABLE 2.6.7B

NORMALIZED BAG FRACTIONS FOR
CALIFORNIA
LIGHT DUTY DIESEL POWERED TRUCKS

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1979	1.209	0.115	1.073	0.093	0.703	0.095	1.000	0.098
	1979+	1.209	0.090	1.073	0.072	0.703	0.077	1.000	0.077
CO	Pre-1979	1.199	0.057	0.935	0.040	0.974	0.048	1.000	0.046
	1979+	1.199	0.049	0.935	0.034	0.974	0.042	1.000	0.039
NOx	Pre-1979	1.068	0.040	0.981	0.042	0.985	0.038	1.000	0.040
	1979-1980	1.068	0.071	0.981	0.072	0.985	0.068	1.000	0.071
	1981-1982	1.068	0.040	0.981	0.042	0.985	0.038	1.000	0.040
	1983+	1.068	0.054	0.981	0.055	0.985	0.052	1.000	0.054

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.7.1

EXHAUST EMISSION RATES FOR
CALIFORNIA
HEAVY DUTY DIESEL POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1984	3.49	0.04	3.69
	1984+	2.65	0.04	2.85
CO	Pre-1984	10.91	0.10	11.41
	1984+	10.91	0.10	11.41
NOx	Pre-1977	22.90	0.12	23.50
	1977-1979	19.47	0.12	20.07
	1980-1983	13.74	0.12	14.34
	1984+	10.31	0.12	10.91

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.2.4, for the emission standards.

DATE: MARCH 31, 1981

TABLE 2.7.2A

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
HEAVY DUTY DIESEL POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	6.3	1952	6.3	1953	6.3	1954	6.3	1955	6.3	1956	6.3	1957	6.3	1958	6.3	1959	6.3	1960	6.3	1961	6.3	1962	6.3
1952	6.3	1953	6.3	1954	6.3	1955	6.3	1956	6.3	1957	6.3	1958	6.3	1959	6.3	1960	6.3	1961	6.3	1962	6.3	1963	6.3
1953	6.2	1954	6.2	1955	6.2	1956	6.2	1957	6.2	1958	6.2	1959	6.2	1960	6.2	1961	6.2	1962	6.2	1963	6.2	1964	6.2
1954	6.1	1955	6.1	1956	6.1	1957	6.1	1958	6.1	1959	6.1	1960	6.1	1961	6.1	1962	6.1	1963	6.1	1964	6.1	1965	6.1
1955	6.0	1956	6.0	1957	6.0	1958	6.0	1959	6.0	1960	6.0	1961	6.0	1962	6.0	1963	6.0	1964	6.0	1965	6.0	1966	6.0
1956	5.9	1957	5.9	1958	5.9	1959	5.9	1960	5.9	1961	5.9	1962	5.9	1963	5.9	1964	5.9	1965	5.9	1966	5.9	1967	5.9
1957	5.8	1958	5.8	1959	5.8	1960	5.8	1961	5.8	1962	5.8	1963	5.8	1964	5.8	1965	5.8	1966	5.8	1967	5.8	1968	5.8
1958	5.6	1959	5.6	1960	5.6	1961	5.6	1962	5.6	1963	5.6	1964	5.6	1965	5.6	1966	5.6	1967	5.6	1968	5.6	1969	5.6
1959	5.5	1960	5.5	1961	5.5	1962	5.5	1963	5.5	1964	5.5	1965	5.5	1966	5.5	1967	5.5	1968	5.5	1969	5.5	1970	5.5
1960	5.4	1961	5.4	1962	5.4	1963	5.4	1964	5.4	1965	5.4	1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	5.4	1971	5.4
1961	5.2	1962	5.2	1963	5.2	1964	5.2	1965	5.2	1966	5.2	1967	5.2	1968	5.2	1969	5.2	1970	5.2	1971	5.2	1972	5.2
1962	5.1	1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	5.1	1971	5.1	1972	5.1	1973	5.1
1963	4.9	1964	4.9	1965	4.9	1966	4.9	1967	4.9	1968	4.9	1969	4.9	1970	4.9	1971	4.9	1972	4.9	1973	4.9	1974	4.9
1964	4.8	1965	4.8	1966	4.8	1967	4.8	1968	4.8	1969	4.8	1970	4.8	1971	4.8	1972	4.8	1973	4.8	1974	4.8	1975	4.8
1965	4.6	1966	4.6	1967	4.6	1968	4.6	1969	4.6	1970	4.6	1971	4.6	1972	4.6	1973	4.6	1974	4.6	1975	4.6	1976	4.6
1966	4.4	1967	4.4	1968	4.4	1969	4.4	1970	4.4	1971	4.4	1972	4.4	1973	4.4	1974	4.4	1975	4.4	1976	4.4	1977	4.4
1967	4.2	1968	4.2	1969	4.2	1970	4.2	1971	4.2	1972	4.2	1973	4.2	1974	4.2	1975	4.2	1976	4.2	1977	4.2	1978	4.2
1968	3.9	1969	3.9	1970	3.9	1971	3.9	1972	3.9	1973	3.9	1974	3.9	1975	3.9	1976	3.9	1977	3.9	1978	3.9	1979	3.9
1969	3.6	1970	3.6	1971	3.6	1972	3.6	1973	3.6	1974	3.6	1975	3.6	1976	3.6	1977	3.6	1978	3.6	1979	3.6	1980	3.6
1970	3.5	1971	3.5	1972	3.5	1973	3.5	1974	3.5	1975	3.5	1976	3.5	1977	3.5	1978	3.5	1979	3.5	1980	3.5	1981	3.5

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	6.3	1964	6.3	1965	6.3	1966	6.3	1967	6.3	1968	6.3	1969	6.3	1970	6.3	1971	6.3	1972	6.3	1973	6.3	1974	6.3
1964	6.3	1965	6.3	1966	6.3	1967	6.3	1968	6.3	1969	6.3	1970	6.3	1971	6.3	1972	6.3	1973	6.3	1974	6.3	1975	6.3
1965	6.2	1966	6.2	1967	6.2	1968	6.2	1969	6.2	1970	6.2	1971	6.2	1972	6.2	1973	6.2	1974	6.2	1975	6.2	1976	6.2
1966	6.1	1967	6.1	1968	6.1	1969	6.1	1970	6.1	1971	6.1	1972	6.1	1973	6.1	1974	6.1	1975	6.1	1976	6.1	1977	6.1
1967	6.0	1968	6.0	1969	6.0	1970	6.0	1971	6.0	1972	6.0	1973	6.0	1974	6.0	1975	6.0	1976	6.0	1977	6.0	1978	6.0
1968	5.9	1969	5.9	1970	5.9	1971	5.9	1972	5.9	1973	5.9	1974	5.9	1975	5.9	1976	5.9	1977	5.9	1978	5.9	1979	5.9
1969	5.8	1970	5.8	1971	5.8	1972	5.8	1973	5.8	1974	5.8	1975	5.8	1976	5.8	1977	5.8	1978	5.8	1979	5.8	1980	5.8
1970	5.6	1971	5.6	1972	5.6	1973	5.6	1974	5.6	1975	5.6	1976	5.6	1977	5.6	1978	5.6	1979	5.6	1980	5.6	1981	5.6
1971	5.5	1972	5.5	1973	5.5	1974	5.5	1975	5.5	1976	5.5	1977	5.5	1978	5.5	1979	5.5	1980	5.5	1981	5.5	1982	5.5
1972	5.4	1973	5.4	1974	5.4	1975	5.4	1976	5.4	1977	5.4	1978	5.4	1979	5.4	1980	5.4	1981	5.4	1982	5.4	1983	5.4
1973	5.2	1974	5.2	1975	5.2	1976	5.2	1977	5.2	1978	5.2	1979	5.2	1980	5.2	1981	5.2	1982	5.2	1983	5.2	1984	4.4
1974	5.1	1975	5.1	1976	5.1	1977	5.1	1978	5.1	1979	5.1	1980	5.1	1981	5.1	1982	5.1	1983	5.1	1984	4.3	1985	4.3
1975	4.9	1976	4.9	1977	4.9	1978	4.9	1979	4.9	1980	4.9	1981	4.9	1982	4.9	1983	4.9	1984	4.1	1985	4.1	1986	4.1
1976	4.8	1977	4.8	1978	4.8	1979	4.8	1980	4.8	1981	4.8	1982	4.8	1983	4.8	1984	3.9	1985	3.9	1986	3.9	1987	3.9
1977	4.6	1978	4.6	1979	4.6	1980	4.6	1981	4.6	1982	4.6	1983	4.6	1984	3.8	1985	3.8	1986	3.8	1987	3.8	1988	3.8
1978	4.4	1979	4.4	1980	4.4	1981	4.4	1982	4.4	1983	4.4	1984	3.5	1985	3.5	1986	3.5	1987	3.5	1988	3.5	1989	3.5
1979	4.2	1980	4.2	1981	4.2	1982	4.2	1983	4.2	1984	3.3	1985	3.3	1986	3.3	1987	3.3	1988	3.3	1989	3.3	1990	3.3
1980	3.9	1981	3.9	1982	3.9	1983	3.9	1984	3.1	1985	3.1	1986	3.1	1987	3.1	1988	3.1	1989	3.1	1990	3.1	1991	3.1
1981	3.6	1982	3.6	1983	3.6	1984	2.8	1985	2.8	1986	2.8	1987	2.8	1988	2.8	1989	2.8	1990	2.8	1991	2.8	1992	2.8
1982	3.5	1983	3.5	1984	2.6	1985	2.6	1986	2.6	1987	2.6	1988	2.6	1989	2.6	1990	2.6	1991	2.6	1992	2.6	1993	2.6

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 2.7.4.

DATE: MARCH 31, 1981

TABLE 2.7.2B

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
HEAVY DUTY DIESEL POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	18.0	1952	18.0	1953	18.0	1954	18.0	1955	18.0	1956	18.0	1957	18.0	1958	18.0	1959	18.0	1960	18.0	1961	18.0	1962	18.0
1952	17.8	1953	17.8	1954	17.8	1955	17.8	1956	17.8	1957	17.8	1958	17.8	1959	17.8	1960	17.8	1961	17.8	1962	17.8	1963	17.8
1953	17.7	1954	17.7	1955	17.7	1956	17.7	1957	17.7	1958	17.7	1959	17.7	1960	17.7	1961	17.7	1962	17.7	1963	17.7	1964	17.7
1954	17.4	1955	17.4	1956	17.4	1957	17.4	1958	17.4	1959	17.4	1960	17.4	1961	17.4	1962	17.4	1963	17.4	1964	17.4	1965	17.4
1955	17.2	1956	17.2	1957	17.2	1958	17.2	1959	17.2	1960	17.2	1961	17.2	1962	17.2	1963	17.2	1964	17.2	1965	17.2	1966	17.2
1956	16.9	1957	16.9	1958	16.9	1959	16.9	1960	16.9	1961	16.9	1962	16.9	1963	16.9	1964	16.9	1965	16.9	1966	16.9	1967	16.9
1957	16.6	1958	16.6	1959	16.6	1960	16.6	1961	16.6	1962	16.6	1963	16.6	1964	16.6	1965	16.6	1966	16.6	1967	16.6	1968	16.6
1958	16.3	1959	16.3	1960	16.3	1961	16.3	1962	16.3	1963	16.3	1964	16.3	1965	16.3	1966	16.3	1967	16.3	1968	16.3	1969	16.3
1959	15.9	1960	15.9	1961	15.9	1962	15.9	1963	15.9	1964	15.9	1965	15.9	1966	15.9	1967	15.9	1968	15.9	1969	15.9	1970	15.9
1960	15.6	1961	15.6	1962	15.6	1963	15.6	1964	15.6	1965	15.6	1966	15.6	1967	15.6	1968	15.6	1969	15.6	1970	15.6	1971	15.6
1961	15.3	1962	15.3	1963	15.3	1964	15.3	1965	15.3	1966	15.3	1967	15.3	1968	15.3	1969	15.3	1970	15.3	1971	15.3	1972	15.3
1962	14.9	1963	14.9	1964	14.9	1965	14.9	1966	14.9	1967	14.9	1968	14.9	1969	14.9	1970	14.9	1971	14.9	1972	14.9	1973	14.9
1963	14.5	1964	14.5	1965	14.5	1966	14.5	1967	14.5	1968	14.5	1969	14.5	1970	14.5	1971	14.5	1972	14.5	1973	14.5	1974	14.5
1964	14.1	1965	14.1	1966	14.1	1967	14.1	1968	14.1	1969	14.1	1970	14.1	1971	14.1	1972	14.1	1973	14.1	1974	14.1	1975	14.1
1965	13.7	1966	13.7	1967	13.7	1968	13.7	1969	13.7	1970	13.7	1971	13.7	1972	13.7	1973	13.7	1974	13.7	1975	13.7	1976	13.7
1966	13.2	1967	13.2	1968	13.2	1969	13.2	1970	13.2	1971	13.2	1972	13.2	1973	13.2	1974	13.2	1975	13.2	1976	13.2	1977	13.2
1967	12.6	1968	12.6	1969	12.6	1970	12.6	1971	12.6	1972	12.6	1973	12.6	1974	12.6	1975	12.6	1976	12.6	1977	12.6	1978	12.6
1968	11.9	1969	11.9	1970	11.9	1971	11.9	1972	11.9	1973	11.9	1974	11.9	1975	11.9	1976	11.9	1977	11.9	1978	11.9	1979	11.9
1969	11.3	1970	11.3	1971	11.3	1972	11.3	1973	11.3	1974	11.3	1975	11.3	1976	11.3	1977	11.3	1978	11.3	1979	11.3	1980	11.3
1970	10.9	1971	10.9	1972	10.9	1973	10.9	1974	10.9	1975	10.9	1976	10.9	1977	10.9	1978	10.9	1979	10.9	1980	10.9	1981	10.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	18.0	1964	18.0	1965	18.0	1966	18.0	1967	18.0	1968	18.0	1969	18.0	1970	18.0	1971	18.0	1972	18.0	1973	18.0	1974	18.0
1964	17.8	1965	17.8	1966	17.8	1967	17.8	1968	17.8	1969	17.8	1970	17.8	1971	17.8	1972	17.8	1973	17.8	1974	17.8	1975	17.8
1965	17.7	1966	17.7	1967	17.7	1968	17.7	1969	17.7	1970	17.7	1971	17.7	1972	17.7	1973	17.7	1974	17.7	1975	17.7	1976	17.7
1966	17.4	1967	17.4	1968	17.4	1969	17.4	1970	17.4	1971	17.4	1972	17.4	1973	17.4	1974	17.4	1975	17.4	1976	17.4	1977	17.4
1967	17.2	1968	17.2	1969	17.2	1970	17.2	1971	17.2	1972	17.2	1973	17.2	1974	17.2	1975	17.2	1976	17.2	1977	17.2	1978	17.2
1968	16.9	1969	16.9	1970	16.9	1971	16.9	1972	16.9	1973	16.9	1974	16.9	1975	16.9	1976	16.9	1977	16.9	1978	16.9	1979	16.9
1969	16.6	1970	16.6	1971	16.6	1972	16.6	1973	16.6	1974	16.6	1975	16.6	1976	16.6	1977	16.6	1978	16.6	1979	16.6	1980	16.6
1970	16.3	1971	16.3	1972	16.3	1973	16.3	1974	16.3	1975	16.3	1976	16.3	1977	16.3	1978	16.3	1979	16.3	1980	16.3	1981	16.3
1971	15.9	1972	15.9	1973	15.9	1974	15.9	1975	15.9	1976	15.9	1977	15.9	1978	15.9	1979	15.9	1980	15.9	1981	15.9	1982	15.9
1972	15.6	1973	15.6	1974	15.6	1975	15.6	1976	15.6	1977	15.6	1978	15.6	1979	15.6	1980	15.6	1981	15.6	1982	15.6	1983	15.6
1973	15.3	1974	15.3	1975	15.3	1976	15.3	1977	15.3	1978	15.3	1979	15.3	1980	15.3	1981	15.3	1982	15.3	1983	15.3	1984	15.3
1974	14.9	1975	14.9	1976	14.9	1977	14.9	1978	14.9	1979	14.9	1980	14.9	1981	14.9	1982	14.9	1983	14.9	1984	14.9	1985	14.9
1975	14.5	1976	14.5	1977	14.5	1978	14.5	1979	14.5	1980	14.5	1981	14.5	1982	14.5	1983	14.5	1984	14.5	1985	14.5	1986	14.5
1976	14.1	1977	14.1	1978	14.1	1979	14.1	1980	14.1	1981	14.1	1982	14.1	1983	14.1	1984	14.1	1985	14.1	1986	14.1	1987	14.1
1977	13.7	1978	13.7	1979	13.7	1980	13.7	1981	13.7	1982	13.7	1983	13.7	1984	13.7	1985	13.7	1986	13.7	1987	13.7	1988	13.7
1978	13.2	1979	13.2	1980	13.2	1981	13.2	1982	13.2	1983	13.2	1984	13.2	1985	13.2	1986	13.2	1987	13.2	1988	13.2	1989	13.2
1979	12.6	1980	12.6	1981	12.6	1982	12.6	1983	12.6	1984	12.6	1985	12.6	1986	12.6	1987	12.6	1988	12.6	1989	12.6	1990	12.6
1980	11.9	1981	11.9	1982	11.9	1983	11.9	1984	11.9	1985	11.9	1986	11.9	1987	11.9	1988	11.9	1989	11.9	1990	11.9	1991	11.9
1981	11.3	1982	11.3	1983	11.3	1984	11.3	1985	11.3	1986	11.3	1987	11.3	1988	11.3	1989	11.3	1990	11.3	1991	11.3	1992	11.3
1982	10.9	1983	10.9	1984	10.9	1985	10.9	1986	10.9	1987	10.9	1988	10.9	1989	10.9	1990	10.9	1991	10.9	1992	10.9	1993	10.9

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 2.7.4.

DATE: MARCH 31, 1981

TABLE 2.7.2C

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
HEAVY DUTY DIESEL POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	31.4	1952	31.4	1953	31.4	1954	31.4	1955	31.4	1956	31.4	1957	31.4	1958	31.4	1959	31.4	1960	31.4	1961	31.4	1962	31.4
1952	31.2	1953	31.2	1954	31.2	1955	31.2	1956	31.2	1957	31.2	1958	31.2	1959	31.2	1960	31.2	1961	31.2	1962	31.2	1963	31.2
1953	31.0	1954	31.0	1955	31.0	1956	31.0	1957	31.0	1958	31.0	1959	31.0	1960	31.0	1961	31.0	1962	31.0	1963	31.0	1964	31.0
1954	30.7	1955	30.7	1956	30.7	1957	30.7	1958	30.7	1959	30.7	1960	30.7	1961	30.7	1962	30.7	1963	30.7	1964	30.7	1965	30.7
1955	30.4	1956	30.4	1957	30.4	1958	30.4	1959	30.4	1960	30.4	1961	30.4	1962	30.4	1963	30.4	1964	30.4	1965	30.4	1966	30.4
1956	30.1	1957	30.1	1958	30.1	1959	30.1	1960	30.1	1961	30.1	1962	30.1	1963	30.1	1964	30.1	1965	30.1	1966	30.1	1967	30.1
1957	29.7	1958	29.7	1959	29.7	1960	29.7	1961	29.7	1962	29.7	1963	29.7	1964	29.7	1965	29.7	1966	29.7	1967	29.7	1968	29.7
1958	29.3	1959	29.3	1960	29.3	1961	29.3	1962	29.3	1963	29.3	1964	29.3	1965	29.3	1966	29.3	1967	29.3	1968	29.3	1969	29.3
1959	28.9	1960	28.9	1961	28.9	1962	28.9	1963	28.9	1964	28.9	1965	28.9	1966	28.9	1967	28.9	1968	28.9	1969	28.9	1970	28.9
1960	28.5	1961	28.5	1962	28.5	1963	28.5	1964	28.5	1965	28.5	1966	28.5	1967	28.5	1968	28.5	1969	28.5	1970	28.5	1971	28.5
1961	28.1	1962	28.1	1963	28.1	1964	28.1	1965	28.1	1966	28.1	1967	28.1	1968	28.1	1969	28.1	1970	28.1	1971	28.1	1972	28.1
1962	27.7	1963	27.7	1964	27.7	1965	27.7	1966	27.7	1967	27.7	1968	27.7	1969	27.7	1970	27.7	1971	27.7	1972	27.7	1973	27.7
1963	27.3	1964	27.3	1965	27.3	1966	27.3	1967	27.3	1968	27.3	1969	27.3	1970	27.3	1971	27.3	1972	27.3	1973	27.3	1974	27.3
1964	26.8	1965	26.8	1966	26.8	1967	26.8	1968	26.8	1969	26.8	1970	26.8	1971	26.8	1972	26.8	1973	26.8	1974	26.8	1975	26.8
1965	26.2	1966	26.2	1967	26.2	1968	26.2	1969	26.2	1970	26.2	1971	26.2	1972	26.2	1973	26.2	1974	26.2	1975	26.2	1976	26.2
1966	25.6	1967	25.6	1968	25.6	1969	25.6	1970	25.6	1971	25.6	1972	25.6	1973	25.6	1974	25.6	1975	25.6	1976	25.6	1977	22.2
1967	24.9	1968	24.9	1969	24.9	1970	24.9	1971	24.9	1972	24.9	1973	24.9	1974	24.9	1975	24.9	1976	24.9	1977	21.5	1978	21.5
1968	24.1	1969	24.1	1970	24.1	1971	24.1	1972	24.1	1973	24.1	1974	24.1	1975	24.1	1976	24.1	1977	20.7	1978	20.7	1979	20.7
1969	23.3	1970	23.3	1971	23.3	1972	23.3	1973	23.3	1974	23.3	1975	23.3	1976	23.3	1977	19.9	1978	19.9	1979	19.9	1980	14.2
1970	22.9	1971	22.9	1972	22.9	1973	22.9	1974	22.9	1975	22.9	1976	22.9	1977	19.5	1978	19.5	1979	19.5	1980	13.7	1981	13.7

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	31.4	1964	31.4	1965	31.4	1966	31.4	1967	31.4	1968	31.4	1969	31.4	1970	31.4	1971	31.4	1972	31.4	1973	31.4	1974	31.4
1964	31.2	1965	31.2	1966	31.2	1967	31.2	1968	31.2	1969	31.2	1970	31.2	1971	31.2	1972	31.2	1973	31.2	1974	31.2	1975	31.2
1965	31.0	1966	31.0	1967	31.0	1968	31.0	1969	31.0	1970	31.0	1971	31.0	1972	31.0	1973	31.0	1974	31.0	1975	31.0	1976	31.0
1966	30.7	1967	30.7	1968	30.7	1969	30.7	1970	30.7	1971	30.7	1972	30.7	1973	30.7	1974	30.7	1975	30.7	1976	30.7	1977	27.3
1967	30.4	1968	30.4	1969	30.4	1970	30.4	1971	30.4	1972	30.4	1973	30.4	1974	30.4	1975	30.4	1976	30.4	1977	27.0	1978	27.0
1968	30.1	1969	30.1	1970	30.1	1971	30.1	1972	30.1	1973	30.1	1974	30.1	1975	30.1	1976	30.1	1977	26.6	1978	26.6	1979	26.6
1969	29.7	1970	29.7	1971	29.7	1972	29.7	1973	29.7	1974	29.7	1975	29.7	1976	29.7	1977	26.3	1978	26.3	1979	26.3	1980	20.5
1970	29.3	1971	29.3	1972	29.3	1973	29.3	1974	29.3	1975	29.3	1976	29.3	1977	25.9	1978	25.9	1979	25.9	1980	20.2	1981	20.2
1971	28.9	1972	28.9	1973	28.9	1974	28.9	1975	28.9	1976	28.9	1977	25.5	1978	25.5	1979	25.5	1980	19.8	1981	19.8	1982	19.8
1972	28.5	1973	28.5	1974	28.5	1975	28.5	1976	28.5	1977	25.1	1978	25.1	1979	25.1	1980	19.4	1981	19.4	1982	19.4	1983	19.4
1973	28.1	1974	28.1	1975	28.1	1976	28.1	1977	24.7	1978	24.7	1979	24.7	1980	19.0	1981	19.0	1982	19.0	1983	19.0	1984	15.6
1974	27.7	1975	27.7	1976	27.7	1977	24.3	1978	24.3	1979	24.3	1980	18.6	1981	18.6	1982	18.6	1983	18.6	1984	15.1	1985	15.1
1975	27.3	1976	27.3	1977	23.8	1978	23.8	1979	23.8	1980	18.1	1981	18.1	1982	18.1	1983	18.1	1984	14.7	1985	14.7	1986	14.7
1976	26.8	1977	23.3	1978	23.3	1979	23.3	1980	17.6	1981	17.6	1982	17.6	1983	17.6	1984	14.2	1985	14.2	1986	14.2	1987	14.2
1977	22.8	1978	22.8	1979	22.8	1980	17.1	1981	17.1	1982	17.1	1983	17.1	1984	13.6	1985	13.6	1986	13.6	1987	13.6	1988	13.6
1978	22.2	1979	22.2	1980	16.4	1981	16.4	1982	16.4	1983	16.4	1984	13.0	1985	13.0	1986	13.0	1987	13.0	1988	13.0	1989	13.0
1979	21.5	1980	15.8	1981	15.8	1982	15.8	1983	15.8	1984	12.3	1985	12.3	1986	12.3	1987	12.3	1988	12.3	1989	12.3	1990	12.3
1980	15.0	1981	15.0	1982	15.0	1983	15.0	1984	11.6	1985	11.6	1986	11.6	1987	11.6	1988	11.6	1989	11.6	1990	11.6	1991	11.6
1981	14.2	1982	14.2	1983	14.2	1984	10.7	1985	10.7	1986	10.7	1987	10.7	1988	10.7	1989	10.7	1990	10.7	1991	10.7	1992	10.7
1982	13.7	1983	13.7	1984	10.3	1985	10.3	1986	10.3	1987	10.3	1988	10.3	1989	10.3	1990	10.3	1991	10.3	1992	10.3	1993	10.3

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 2.7.4.

DATE: MARCH 31, 1981

TABLE 2.7.3

IDLE EMISSION RATES FOR
CALIFORNIA
HEAVY DUTY DIESEL POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1984	0.36	0.0
	1984+	0.27	0.0
CO	Pre-1984	0.67	0.01
	1984+	0.67	0.01
NOx	Pre-1977	0.92	0.0
	1977-1979	0.78	0.0
	1980-1983	0.55	0.0
	1984+	0.41	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.7.4

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
CALIFORNIA
HEAVY DUTY DIESEL POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.177	70400.	0.0	0.	0.
2	0.142	66900.	0.142	70400.	35200.
3	0.085	60600.	0.085	66900.	103850.
4	0.054	54200.	0.054	60600.	167600.
5	0.098	47900.	0.098	54200.	225000.
6	0.093	43700.	0.093	47900.	276050.
7	0.072	39400.	0.072	43700.	321850.
8	0.052	36600.	0.052	39400.	363399.
9	0.042	34500.	0.042	36600.	401399.
10	0.042	33100.	0.042	34500.	436949.
11	0.031	32400.	0.031	33100.	470749.
12	0.024	31700.	0.024	32400.	503499.
13	0.025	31000.	0.025	31700.	535549.
14	0.019	29600.	0.019	31000.	566899.
15	0.013	27500.	0.013	29600.	597199.
16	0.010	24600.	0.010	27500.	625749.
17	0.007	20400.	0.007	24600.	651799.
18	0.004	17600.	0.004	20400.	674299.
19	0.004	17600.	0.004	17600.	693299.
20+	0.007	17600.	0.007	17600.	710898.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 2.7.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
CALIFORNIA
HEAVY DUTY DIESEL POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) HDDV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) HDDV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.0	1.000	0.0	0.0	0.	0.0	0.0
1984	0.142	1.000	0.142	0.172	70400.	12135.6	0.243
1983	0.085	1.000	0.085	0.104	66900.	6937.2	0.139
1982	0.054	1.000	0.054	0.065	60600.	3948.7	0.079
1981	0.098	1.000	0.098	0.120	54200.	6483.4	0.130
1980	0.093	1.000	0.093	0.113	47900.	5432.9	0.109
1979	0.072	1.000	0.072	0.088	43700.	3824.9	0.076
1978	0.052	1.000	0.052	0.063	39400.	2466.7	0.049
1977	0.042	1.000	0.042	0.051	36600.	1873.2	0.037
1976	0.042	1.000	0.042	0.051	34500.	1748.9	0.035
1975	0.031	1.000	0.031	0.038	33100.	1243.4	0.025
1974	0.024	1.000	0.024	0.029	32400.	925.6	0.018
1973	0.025	1.000	0.025	0.031	31700.	975.0	0.019
1972	0.019	1.000	0.019	0.023	31000.	727.3	0.015
1971	0.013	1.000	0.013	0.016	29600.	464.2	0.009
1970	0.010	1.000	0.010	0.012	27500.	317.6	0.006
1969	0.007	1.000	0.007	0.009	24600.	209.3	0.004
1968	0.004	1.000	0.004	0.005	20400.	94.2	0.002
1967	0.004	1.000	0.004	0.005	17600.	81.3	0.002
1966-	0.007	1.000	0.007	0.008	17600.	147.6	0.003
		DAF:	0.823		TFNORM:	50037.0	

WHERE:

A = January 1 registration mix from Table 2.7.4.
B = Fleet sales fractions will always equal 1.000 for HDDVs.
D = Sales weighted fleet mileage accumulation rate from Table 2.7.4, adjusted to January 1.
D(1) = 0
D(MYI) = Annual Miles(MYI-1) , MYI=2,...,20+

DATE: MARCH 31, 1981

TABLE 2.7.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
HEAVY DUTY DIESEL POWERED VEHICLES

* $SCF(s) = EXP(A + B*s + C*s^2)$

Pol	Model Years	Coefficients A	B	C
HC	All	0.92400	-0.05500	0.00044
CO	All	1.39600	-0.08800	0.00091
NOx	All	0.67600	-0.04800	0.00071

* where s = average speed (mph)

DATE: MARCH 31, 1981

TABLE 2.7.7

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
HEAVY DUTY DIESEL POWERED VEHICLES

* TCF = EXP(TC * (T - TT))

Pol	Model Years	TC Low	TC High
HC	All	0.0	0.0
CO	All	0.0	0.0
NOx	All	0.0	0.0

* WHERE:
T = Ambient temperature (Fahrenheit)
TC = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: This table indicates diesel emissions are insensitive to temperature.

DATE: MARCH 31, 1981

TABLE 2.8.1A

EXHAUST EMISSION RATES FOR
CALIFORNIA
MOTORCYCLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1978	8.90	0.78	12.80
	1978-1979	3.40	1.55	11.15
	1980-1981	2.70	1.64	10.90
	1982-1983	2.50	1.64	10.70
	1984+	1.50	1.64	9.70
CO	Pre-1978	34.30	2.47	46.65
	1978-1979	23.40	3.23	39.55
	1980-1981	18.80	1.62	26.90
	1982-1983	18.80	1.45	26.05
	1984+	17.50	1.45	24.75
NOx	Pre-1978	0.20	0.06	0.50
	1978-1979	0.65	0.0	0.65
	1980-1981	0.76	0.0	0.76
	1982-1983	0.82	0.0	0.82
	1984+	0.80	0.0	0.80

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.2.5, for the emission standards.

DATE: MARCH 31, 1981

TABLE 2.8.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
CALIFORNIA
MOTORCYCLES

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1978	4.56	1.35	6.71	8.30	0.31	1.86
1978-1981	6.76	1.35	8.42	8.30	0.0	2.11
1982-1983	7.44	1.35	8.99	8.30	0.0	2.29
1984	1.56	1.35	2.59	8.30	0.0	0.57
1985	1.37	1.35	2.33	8.30	0.0	0.50
1986+	0.63	1.35	1.07	8.30	0.0	0.23

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 2.8.2A

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
MOTORCYCLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	10.0	1952	10.0	1953	10.0	1954	10.0	1955	10.0	1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0
1952	10.0	1953	10.0	1954	10.0	1955	10.0	1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0
1953	10.0	1954	10.0	1955	10.0	1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0
1954	10.0	1955	10.0	1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0
1955	10.0	1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0
1956	10.0	1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0
1957	10.0	1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0
1958	10.0	1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0
1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0
1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0
1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0
1962	9.9	1963	9.9	1964	9.9	1965	9.9	1966	9.9	1967	9.9	1968	9.9	1969	9.9	1970	9.9	1971	9.9	1972	9.9	1973	9.9
1963	9.9	1964	9.9	1965	9.9	1966	9.9	1967	9.9	1968	9.9	1969	9.9	1970	9.9	1971	9.9	1972	9.9	1973	9.9	1974	9.9
1964	9.9	1965	9.9	1966	9.9	1967	9.9	1968	9.9	1969	9.9	1970	9.9	1971	9.9	1972	9.9	1973	9.9	1974	9.9	1975	9.9
1965	9.8	1966	9.8	1967	9.8	1968	9.8	1969	9.8	1970	9.8	1971	9.8	1972	9.8	1973	9.8	1974	9.8	1975	9.8	1976	9.8
1966	9.7	1967	9.7	1968	9.7	1969	9.7	1970	9.7	1971	9.7	1972	9.7	1973	9.7	1974	9.7	1975	9.7	1976	9.7	1977	9.7
1967	9.5	1968	9.5	1969	9.5	1970	9.5	1971	9.5	1972	9.5	1973	9.5	1974	9.5	1975	9.5	1976	9.5	1977	9.5	1978	4.6
1968	9.3	1969	9.3	1970	9.3	1971	9.3	1972	9.3	1973	9.3	1974	9.3	1975	9.3	1976	9.3	1977	9.3	1978	4.3	1979	4.3
1969	9.1	1970	9.1	1971	9.1	1972	9.1	1973	9.1	1974	9.1	1975	9.1	1976	9.1	1977	9.1	1978	3.7	1979	3.7	1980	3.0
1970	8.9	1971	8.9	1972	8.9	1973	8.9	1974	8.9	1975	8.9	1976	8.9	1977	8.9	1978	3.4	1979	3.4	1980	2.7	1981	2.7

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0
1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0
1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0
1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0
1967	10.0	1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.6
1968	10.0	1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.6	1979	5.6
1969	10.0	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.6	1979	5.6	1980	5.0
1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.6	1979	5.6	1980	5.0	1981	5.0
1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.6	1979	5.6	1980	5.0	1981	5.0	1982	4.8
1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.6	1979	5.6	1980	5.0	1981	5.0	1982	4.8	1983	4.8
1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	5.5	1979	5.5	1980	4.9	1981	4.9	1982	4.7	1983	4.7	1984	3.7
1974	9.9	1975	9.9	1976	9.9	1977	9.9	1978	5.5	1979	5.5	1980	4.9	1981	4.9	1982	4.7	1983	4.7	1984	3.7	1985	3.7
1975	9.9	1976	9.9	1977	9.9	1978	5.4	1979	5.4	1980	4.8	1981	4.8	1982	4.6	1983	4.6	1984	3.6	1985	3.6	1986	3.6
1976	9.9	1977	9.9	1978	5.3	1979	5.3	1980	4.7	1981	4.7	1982	4.5	1983	4.5	1984	3.5	1985	3.5	1986	3.5	1987	3.5
1977	9.8	1978	5.1	1979	5.1	1980	4.5	1981	4.5	1982	4.3	1983	4.3	1984	3.3	1985	3.3	1986	3.3	1987	3.3	1988	3.3
1978	4.9	1979	4.9	1980	4.3	1981	4.3	1982	4.1	1983	4.1	1984	3.1	1985	3.1	1986	3.1	1987	3.1	1988	3.1	1989	3.1
1979	4.6	1980	4.0	1981	4.0	1982	3.8	1983	3.8	1984	2.8	1985	2.8	1986	2.8	1987	2.8	1988	2.8	1989	2.8	1990	2.8
1980	3.6	1981	3.6	1982	3.4	1983	3.4	1984	2.4	1985	2.4	1986	2.4	1987	2.4	1988	2.4	1989	2.4	1990	2.4	1991	2.4
1981	3.0	1982	2.8	1983	2.8	1984	1.8	1985	1.8	1986	1.8	1987	1.8	1988	1.8	1989	1.8	1990	1.8	1991	1.8	1992	1.8
1982	2.5	1983	2.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5	1990	1.5	1991	1.5	1992	1.5	1993	1.5

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.8.4.

DATE: MARCH 31, 1981

TABLE 2.8.2B

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
MOTORCYCLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	37.8	1952	37.8	1953	37.8	1954	37.8	1955	37.8	1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8
1952	37.8	1953	37.8	1954	37.8	1955	37.8	1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8
1953	37.8	1954	37.8	1955	37.8	1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8
1954	37.8	1955	37.8	1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8
1955	37.8	1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8	1966	37.8
1956	37.8	1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8	1966	37.8	1967	37.8
1957	37.8	1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8	1966	37.8	1967	37.8	1968	37.8
1958	37.8	1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8	1966	37.8	1967	37.8	1968	37.8	1969	37.8
1959	37.8	1960	37.8	1961	37.8	1962	37.8	1963	37.8	1964	37.8	1965	37.8	1966	37.8	1967	37.8	1968	37.8	1969	37.8	1970	37.8
1960	37.7	1961	37.7	1962	37.7	1963	37.7	1964	37.7	1965	37.7	1966	37.7	1967	37.7	1968	37.7	1969	37.7	1970	37.7	1971	37.7
1961	37.7	1962	37.7	1963	37.7	1964	37.7	1965	37.7	1966	37.7	1967	37.7	1968	37.7	1969	37.7	1970	37.7	1971	37.7	1972	37.7
1962	37.6	1963	37.6	1964	37.6	1965	37.6	1966	37.6	1967	37.6	1968	37.6	1969	37.6	1970	37.6	1971	37.6	1972	37.6	1973	37.6
1963	37.5	1964	37.5	1965	37.5	1966	37.5	1967	37.5	1968	37.5	1969	37.5	1970	37.5	1971	37.5	1972	37.5	1973	37.5	1974	37.5
1964	37.3	1965	37.3	1966	37.3	1967	37.3	1968	37.3	1969	37.3	1970	37.3	1971	37.3	1972	37.3	1973	37.3	1974	37.3	1975	37.3
1965	37.1	1966	37.1	1967	37.1	1968	37.1	1969	37.1	1970	37.1	1971	37.1	1972	37.1	1973	37.1	1974	37.1	1975	37.1	1976	37.1
1966	36.7	1967	36.7	1968	36.7	1969	36.7	1970	36.7	1971	36.7	1972	36.7	1973	36.7	1974	36.7	1975	36.7	1976	36.7	1977	36.7
1967	36.3	1968	36.3	1969	36.3	1970	36.3	1971	36.3	1972	36.3	1973	36.3	1974	36.3	1975	36.3	1976	36.3	1977	36.3	1978	26.0
1968	35.7	1969	35.7	1970	35.7	1971	35.7	1972	35.7	1973	35.7	1974	35.7	1975	35.7	1976	35.7	1977	35.7	1978	25.2	1979	25.2
1969	34.8	1970	34.8	1971	34.8	1972	34.8	1973	34.8	1974	34.8	1975	34.8	1976	34.8	1977	34.8	1978	24.1	1979	24.1	1980	19.1
1970	34.3	1971	34.3	1972	34.3	1973	34.3	1974	34.3	1975	34.3	1976	34.3	1977	34.3	1978	23.4	1979	23.4	1980	18.8	1981	18.8

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	37.8	1964	37.8	1965	37.8	1966	37.8	1967	37.8	1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8
1964	37.8	1965	37.8	1966	37.8	1967	37.8	1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8
1965	37.8	1966	37.8	1967	37.8	1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8
1966	37.8	1967	37.8	1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8
1967	37.8	1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8	1978	28.0
1968	37.8	1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8	1978	28.0	1979	28.0
1969	37.8	1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8	1978	28.0	1979	28.0	1980	21.1
1970	37.8	1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8	1978	28.0	1979	28.0	1980	21.1	1981	21.1
1971	37.8	1972	37.8	1973	37.8	1974	37.8	1975	37.8	1976	37.8	1977	37.8	1978	28.0	1979	28.0	1980	21.1	1981	21.1	1982	20.8
1972	37.7	1973	37.7	1974	37.7	1975	37.7	1976	37.7	1977	37.7	1978	27.9	1979	27.9	1980	21.1	1981	21.1	1982	20.8	1983	20.8
1973	37.7	1974	37.7	1975	37.7	1976	37.7	1977	37.7	1978	27.8	1979	27.8	1980	21.0	1981	21.0	1982	20.8	1983	20.8	1984	19.5
1974	37.6	1975	37.6	1976	37.6	1977	37.6	1978	27.7	1979	27.7	1980	21.0	1981	21.0	1982	20.7	1983	20.7	1984	19.4	1985	19.4
1975	37.5	1976	37.5	1977	37.5	1978	27.6	1979	27.6	1980	20.9	1981	20.9	1982	20.7	1983	20.7	1984	19.4	1985	19.4	1986	19.4
1976	37.3	1977	37.3	1978	27.3	1979	27.3	1980	20.8	1981	20.8	1982	20.6	1983	20.6	1984	19.3	1985	19.3	1986	19.3	1987	19.3
1977	37.1	1978	27.0	1979	27.0	1980	20.6	1981	20.6	1982	20.4	1983	20.4	1984	19.1	1985	19.1	1986	19.1	1987	19.1	1988	19.1
1978	26.6	1979	26.6	1980	20.4	1981	20.4	1982	20.2	1983	20.2	1984	18.9	1985	18.9	1986	18.9	1987	18.9	1988	18.9	1989	18.9
1979	26.0	1980	20.1	1981	20.1	1982	20.0	1983	20.0	1984	18.7	1985	18.7	1986	18.7	1987	18.7	1988	18.7	1989	18.7	1990	18.7
1980	19.7	1981	19.7	1982	19.6	1983	19.6	1984	18.3	1985	18.3	1986	18.3	1987	18.3	1988	18.3	1989	18.3	1990	18.3	1991	18.3
1981	19.1	1982	19.1	1983	19.1	1984	17.8	1985	17.8	1986	17.8	1987	17.8	1988	17.8	1989	17.8	1990	17.8	1991	17.8	1992	17.8
1982	18.8	1983	18.8	1984	17.5	1985	17.5	1986	17.5	1987	17.5	1988	17.5	1989	17.5	1990	17.5	1991	17.5	1992	17.5	1993	17.5

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.8.4.

DATE: MARCH 31, 1981

TABLE 2.8.2C

EXHAUST EMISSION LEVELS FOR
CALIFORNIA
MOTORCYCLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	0.3	1952	0.3	1953	0.3	1954	0.3	1955	0.3	1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3
1952	0.3	1953	0.3	1954	0.3	1955	0.3	1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3
1953	0.3	1954	0.3	1955	0.3	1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3
1954	0.3	1955	0.3	1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3
1955	0.3	1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3
1956	0.3	1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3
1957	0.3	1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3
1958	0.3	1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3
1959	0.3	1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3
1960	0.3	1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3
1961	0.3	1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3
1962	0.3	1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3
1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3
1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3
1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3
1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3
1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.6
1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.6	1979	0.6
1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.6	1979	0.6	1980	0.8
1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.6	1979	0.6	1980	0.8	1981	0.8

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	0.3	1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3
1964	0.3	1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3
1965	0.3	1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3
1966	0.3	1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3
1967	0.3	1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6
1968	0.3	1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6
1969	0.3	1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8
1970	0.3	1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8
1971	0.3	1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8
1972	0.3	1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8
1973	0.3	1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8
1974	0.3	1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8
1975	0.3	1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8
1976	0.3	1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8
1977	0.3	1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8
1978	0.6	1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8
1979	0.6	1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8
1980	0.8	1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1981	0.8	1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8
1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8	1993	0.8

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 2.8.4.

DATE: MARCH 31, 1981

TABLE 2.8.3

IDLE EMISSION RATES FOR
CALIFORNIA
MOTORCYCLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1978	1.95	0.42
	1978-1979	0.74	0.34
	1980-1981	0.59	0.36
	1982-1983	0.55	0.36
	1984+	0.33	0.36
CO	Pre-1978	4.33	0.23
	1978-1979	2.95	0.41
	1980-1981	2.37	0.20
	1982-1983	2.37	0.18
	1984+	2.21	0.18
NOx	Pre-1978	0.01	0.0
	1978-1979	0.03	0.0
	1980-1981	0.04	0.0
	1982-1983	0.04	0.0
	1984+	0.04	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 2.8.4

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
CALIFORNIA
MOTORCYCLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.133	4100.	0.044	0.	0.
2	0.145	2800.	0.145	4100.	2050.
3	0.138	2100.	0.138	2800.	5500.
4	0.116	1600.	0.116	2100.	7950.
5	0.123	1200.	0.123	1600.	9800.
6	0.114	800.	0.114	1200.	11200.
7	0.069	600.	0.069	800.	12200.
8	0.044	400.	0.044	600.	12900.
9	0.024	200.	0.024	400.	13400.
10	0.009	200.	0.009	200.	13700.
11	0.085	200.	0.085	200.	13900.
12	0.0	0.	0.0	200.	14100.
13	0.0	0.	0.0	0.	14200.
14	0.0	0.	0.0	0.	14200.
15	0.0	0.	0.0	0.	14200.
16	0.0	0.	0.0	0.	14200.
17	0.0	0.	0.0	0.	14200.
18	0.0	0.	0.0	0.	14200.
19	0.0	0.	0.0	0.	14200.
20+	0.0	0.	0.0	0.	14200.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 2.8.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
CALIFORNIA
MOTORCYCLES
JANUARY 1, 1985

Model Years	(A) MC Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) MC Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.0	1.000	0.0	0.0	0.	0.0	0.0
1984	0.145	1.000	0.145	0.167	4100.	685.7	0.356
1983	0.138	1.000	0.138	0.159	2800.	445.7	0.232
1982	0.116	1.000	0.116	0.134	2100.	281.0	0.146
1981	0.123	1.000	0.123	0.142	1600.	227.0	0.118
1980	0.114	1.000	0.114	0.131	1200.	157.8	0.082
1979	0.069	1.000	0.069	0.080	800.	63.7	0.033
1978	0.044	1.000	0.044	0.051	600.	30.4	0.016
1977	0.024	1.000	0.024	0.028	400.	11.1	0.006
1976	0.009	1.000	0.009	0.010	200.	2.1	0.001
1975	0.085	1.000	0.085	0.098	200.	19.6	0.010
1974	0.0	1.000	0.0	0.0	200.	0.0	0.0
1973	0.0	1.000	0.0	0.0	0.	0.0	0.0
1972	0.0	1.000	0.0	0.0	0.	0.0	0.0
1971	0.0	1.000	0.0	0.0	0.	0.0	0.0
1970	0.0	1.000	0.0	0.0	0.	0.0	0.0
1969	0.0	1.000	0.0	0.0	0.	0.0	0.0
1968	0.0	1.000	0.0	0.0	0.	0.0	0.0
1967	0.0	1.000	0.0	0.0	0.	0.0	0.0
1966-	0.0	1.000	0.0	0.0	0.	0.0	0.0
		DAF:	0.867		TFNORM:	1924.0	

WHERE:
- A = January 1 registration mix from Table 2.8.4.
- B = Fleet sales fractions will always equal 1.000 for MCs.
- D = Sales weighted fleet mileage accumulation rate from Table 2.8.4, adjusted to January 1.
- D(1) = 0
- D(MYI) = Annual Miles(MYI-1) , MYI=2,...,20+

DATE: MARCH 31, 1981

TABLE 2.8.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
MOTORCYCLES

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*S^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5, \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1978	0.231026E+01	-0.289572E+00	0.152990E-01	-0.446689E-03	0.648183E-05	-0.363456E-07
1978-1979	0.240873E+01	-0.308187E+00	0.168168E-01	-0.506843E-03	0.753855E-05	-0.431596E-07
1980-1981	0.225223E+01	-0.287778E+00	0.156820E-01	-0.473179E-03	0.707954E-05	-0.408456E-07
1982+	0.234948E+01	-0.304959E+00	0.168416E-01	-0.509623E-03	0.759516E-05	-0.434963E-07
CO :						
PRE-1978	0.233989E+01	-0.296978E+00	0.160071E-01	-0.477396E-03	0.706752E-05	-0.403978E-07
1978-1979	0.277804E+01	-0.319130E+00	0.153183E-01	-0.422327E-03	0.584948E-05	-0.314969E-07
1980-1981	0.270743E+01	-0.331038E+00	0.176179E-01	-0.538583E-03	0.817402E-05	-0.477803E-07
1982+	0.268454E+01	-0.332817E+00	0.176277E-01	-0.524123E-03	0.772221E-05	-0.437025E-07
NOx:						
PRE-1978	0.168635E+01	-0.118303E+00	0.654975E-02	-0.137139E-03	0.100849E-05	0.0
1978+	0.128169E+01	-0.804874E-01	0.535735E-02	-0.118891E-03	0.901060E-06	0.0

Where:
- s = average speed (mph)
- sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w. [1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 2.8.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
CALIFORNIA
MOTORCYCLES

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1978	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1978-1979	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1980-1981	-0.21255E-01	-0.10888E-01	-0.52755E-03	-0.47925E-03	0.93659E-03	0.76666E-02
	1982+	-0.21427E-01	-0.66107E-02	-0.39442E-03	0.26288E-02	0.49731E-02	0.12320E-01
CO	Pre-1978	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1978-1979	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1980-1981	-0.20843E-01	-0.21165E-01	-0.59951E-02	0.23603E-01	0.18253E-02	0.28483E-01
	1982+	-0.19091E-01	-0.13146E-01	-0.42373E-03	0.24717E-01	0.57982E-02	0.25848E-01
NOx	Pre-1978	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1978+	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 2.8.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

DATE: MARCH 31, 1981

TABLE 2.8.7B

NORMALIZED BAG FRACTIONS FOR
CALIFORNIA
MOTORCYCLES

Pol	Model Years	Normalized Fractions Test Seg.#1 B1	Test Seg.#1 D1	Test Seg.#2 B2	Test Seg.#2 D2	Test Seg.#3 B3	Test Seg.#3 D3	Total Test B0	Total Test D0
HC	Pre-1978	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1978-1979	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1980-1981	1.345	0.178	0.919	0.118	0.894	0.093	1.000	0.124
	1982+	1.398	0.060	0.885	0.055	0.919	0.036	1.000	0.051
CO	Pre-1978	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1978-1979	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1980-1981	1.553	0.109	0.933	0.079	0.711	0.038	1.000	0.074
	1982+	1.573	0.054	0.902	0.079	0.755	0.029	1.000	0.060
NOx	Pre-1978	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1978+	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.1.1A

EXHAUST EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1968	9.35	0.18	10.25
	1968-1969	5.60	0.25	6.85
	1970-1971	4.58	0.37	6.43
	1972-1974	4.58	0.17	5.43
	1975-1976	2.41	0.29	3.86
	1977	1.07	0.29	2.52
	1978-1979	2.10	0.29	3.55
	1980	0.46	0.29	1.91
	1981	0.59	0.24	1.79
	1982	0.56	0.24	1.76
	1983	0.56	0.24	1.76
	1984+	0.45	0.24	1.65
CO	Pre-1968	117.70	2.25	128.95
	1968-1969	85.54	2.55	98.29
	1970-1971	79.64	3.13	95.29
	1972-1974	75.63	2.44	87.83
	1975-1976	50.46	2.86	64.76
	1977	19.55	2.86	33.85
	1978-1979	39.39	2.86	53.69
	1980	18.22	2.86	32.52
	1981	11.84	4.14	32.54
	1982	9.96	4.17	30.81
	1983	9.78	4.17	30.63
	1984+	7.18	4.22	28.28
NOx	Pre-1968	1.96	0.0	1.96
	1968-1972	2.91	0.0	2.91
	1973-1974	1.91	0.04	2.11
	1975-1976	1.70	0.04	1.90
	1977	1.42	0.10	1.92
	1978-1979	1.02	0.10	1.52
	1980	1.02	0.10	1.52
	1981	0.75	0.15	1.50
	1982	0.75	0.15	1.50
	1983	0.75	0.15	1.50
	1984+	0.75	0.15	1.50

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.1, for the emission standards.

DATE: MARCH 31, 1981

TABLE 3.1.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1963	19.07	3.05	33.90	31.10	5.29	8.25
1963-1967	19.07	3.05	33.90	31.10	1.03	3.99
1968-1970	19.07	3.05	33.90	31.10	0.0	2.96
1971	14.18	3.05	21.16	31.10	0.0	2.07
1972-1976	10.75	3.05	11.67	31.10	0.0	1.43
1977	8.27	3.05	8.98	31.10	0.0	1.10
1978-1980	2.03	3.05	3.45	31.10	0.0	0.31
1981+	0.82	3.05	1.39	31.10	0.0	0.13

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 3.1.2A

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	12.6	1952	12.6	1953	12.6	1954	12.6	1955	12.6	1956	12.6	1957	12.6	1958	12.6	1959	12.6	1960	12.6	1961	12.6	1962	12.6
1952	12.5	1953	12.5	1954	12.5	1955	12.5	1956	12.5	1957	12.5	1958	12.5	1959	12.5	1960	12.5	1961	12.5	1962	12.5	1963	12.5
1953	12.4	1954	12.4	1955	12.4	1956	12.4	1957	12.4	1958	12.4	1959	12.4	1960	12.4	1961	12.4	1962	12.4	1963	12.4	1964	12.4
1954	12.3	1955	12.3	1956	12.3	1957	12.3	1958	12.3	1959	12.3	1960	12.3	1961	12.3	1962	12.3	1963	12.3	1964	12.3	1965	12.3
1955	12.2	1956	12.2	1957	12.2	1958	12.2	1959	12.2	1960	12.2	1961	12.2	1962	12.2	1963	12.2	1964	12.2	1965	12.2	1966	12.2
1956	12.1	1957	12.1	1958	12.1	1959	12.1	1960	12.1	1961	12.1	1962	12.1	1963	12.1	1964	12.1	1965	12.1	1966	12.1	1967	12.1
1957	11.9	1958	11.9	1959	11.9	1960	11.9	1961	11.9	1962	11.9	1963	11.9	1964	11.9	1965	11.9	1966	11.9	1967	11.9	1968	9.2
1958	11.8	1959	11.8	1960	11.8	1961	11.8	1962	11.8	1963	11.8	1964	11.8	1965	11.8	1966	11.8	1967	11.8	1968	9.0	1969	9.0
1959	11.6	1960	11.6	1961	11.6	1962	11.6	1963	11.6	1964	11.6	1965	11.6	1966	11.6	1967	11.6	1968	8.8	1969	8.8	1970	9.3
1960	11.5	1961	11.5	1962	11.5	1963	11.5	1964	11.5	1965	11.5	1966	11.5	1967	11.5	1968	8.5	1969	8.5	1970	8.9	1971	8.9
1961	11.3	1962	11.3	1963	11.3	1964	11.3	1965	11.3	1966	11.3	1967	11.3	1968	8.3	1969	8.3	1970	8.6	1971	8.6	1972	6.4
1962	11.1	1963	11.1	1964	11.1	1965	11.1	1966	11.1	1967	11.1	1968	8.0	1969	8.0	1970	8.2	1971	8.2	1972	6.2	1973	6.2
1963	10.9	1964	10.9	1965	10.9	1966	10.9	1967	10.9	1968	7.8	1969	7.8	1970	7.8	1971	7.8	1972	6.1	1973	6.1	1974	6.1
1964	10.7	1965	10.7	1966	10.7	1967	10.7	1968	7.5	1969	7.5	1970	7.4	1971	7.4	1972	5.9	1973	5.9	1974	5.9	1975	4.6
1965	10.5	1966	10.5	1967	10.5	1968	7.2	1969	7.2	1970	6.9	1971	6.9	1972	5.7	1973	5.7	1974	5.7	1975	4.3	1976	4.3
1966	10.3	1967	10.3	1968	6.9	1969	6.9	1970	6.5	1971	6.5	1972	5.5	1973	5.5	1974	5.5	1975	3.9	1976	3.9	1977	2.6
1967	10.0	1968	6.6	1969	6.6	1970	6.0	1971	6.0	1972	5.2	1973	5.2	1974	5.2	1975	3.5	1976	3.5	1977	2.2	1978	3.2
1968	6.2	1969	6.2	1970	5.5	1971	5.5	1972	5.0	1973	5.0	1974	5.0	1975	3.1	1976	3.1	1977	1.8	1978	2.8	1979	2.8
1969	5.9	1970	5.0	1971	5.0	1972	4.8	1973	4.8	1974	4.8	1975	2.7	1976	2.7	1977	1.4	1978	2.4	1979	2.4	1980	0.8
1970	4.6	1971	4.6	1972	4.6	1973	4.6	1974	4.6	1975	2.5	1976	2.5	1977	1.1	1978	2.2	1979	2.2	1980	0.5	1981	0.6

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	12.6	1964	12.6	1965	12.6	1966	12.6	1967	12.6	1968	10.1	1969	10.1	1970	11.3	1971	11.3	1972	7.7	1973	7.7	1974	7.7
1964	12.5	1965	12.5	1966	12.5	1967	12.5	1968	10.0	1969	10.0	1970	11.1	1971	11.1	1972	7.6	1973	7.6	1974	7.6	1975	7.5
1965	12.4	1966	12.4	1967	12.4	1968	9.9	1969	9.9	1970	10.9	1971	10.9	1972	7.5	1973	7.5	1974	7.5	1975	7.4	1976	7.4
1966	12.3	1967	12.3	1968	9.7	1969	9.7	1970	10.7	1971	10.7	1972	7.4	1973	7.4	1974	7.4	1975	7.2	1976	7.2	1977	5.9
1967	12.2	1968	9.6	1969	9.6	1970	10.5	1971	10.5	1972	7.3	1973	7.3	1974	7.3	1975	7.0	1976	7.0	1977	5.7	1978	6.7
1968	9.4	1969	9.4	1970	10.2	1971	10.2	1972	7.2	1973	7.2	1974	7.2	1975	6.8	1976	6.8	1977	5.5	1978	6.5	1979	6.5
1969	9.2	1970	9.9	1971	9.9	1972	7.0	1973	7.0	1974	7.0	1975	6.6	1976	6.6	1977	5.2	1978	6.3	1979	6.3	1980	4.6
1970	9.6	1971	9.6	1972	6.9	1973	6.9	1974	6.9	1975	6.3	1976	6.3	1977	5.0	1978	6.0	1979	6.0	1980	4.4	1981	3.8
1971	9.3	1972	6.7	1973	6.7	1974	6.7	1975	6.1	1976	6.1	1977	4.8	1978	5.8	1979	5.8	1980	4.1	1981	3.6	1982	3.6
1972	6.6	1973	6.6	1974	6.6	1975	5.8	1976	5.8	1977	4.5	1978	5.5	1979	5.5	1980	3.9	1981	3.4	1982	3.4	1983	3.4
1973	6.4	1974	6.4	1975	5.5	1976	5.5	1977	4.2	1978	5.2	1979	5.2	1980	3.6	1981	3.2	1982	3.2	1983	3.2	1984	3.0
1974	6.2	1975	5.2	1976	5.2	1977	3.9	1978	4.9	1979	4.9	1980	3.3	1981	2.9	1982	2.9	1983	2.9	1984	2.8	1985	2.8
1975	4.9	1976	4.9	1977	3.6	1978	4.6	1979	4.6	1980	3.0	1981	2.7	1982	2.6	1983	2.6	1984	2.5	1985	2.5	1986	2.5
1976	4.6	1977	3.3	1978	4.3	1979	4.3	1980	2.7	1981	2.4	1982	2.4	1983	2.4	1984	2.3	1985	2.3	1986	2.3	1987	2.3
1977	2.9	1978	3.9	1979	3.9	1980	2.3	1981	2.1	1982	2.1	1983	2.1	1984	2.0	1985	2.0	1986	2.0	1987	2.0	1988	2.0
1978	3.6	1979	3.6	1980	1.9	1981	1.8	1982	1.8	1983	1.8	1984	1.7	1985	1.7	1986	1.7	1987	1.7	1988	1.7	1989	1.7
1979	3.2	1980	1.6	1981	1.5	1982	1.5	1983	1.5	1984	1.4	1985	1.4	1986	1.4	1987	1.4	1988	1.4	1989	1.4	1990	1.4
1980	1.2	1981	1.2	1982	1.2	1983	1.2	1984	1.0	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0	1990	1.0	1991	1.0
1981	0.8	1982	0.8	1983	0.8	1984	0.7	1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7	1992	0.7
1982	0.6	1983	0.6	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5	1992	0.5	1993	0.5

*MY -- Indicates the model year.

**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.1.4A.

DATE: MARCH 31, 1981

TABLE 3.1.2B

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	158.6	1952	158.6	1953	158.6	1954	158.6	1955	158.6	1956	158.6	1957	158.6	1958	158.6	1959	158.6	1960	158.6	1961	158.6	1962	158.6
1952	157.5	1953	157.5	1954	157.5	1955	157.5	1956	157.5	1957	157.5	1958	157.5	1959	157.5	1960	157.5	1961	157.5	1962	157.5	1963	157.5
1953	156.2	1954	156.2	1955	156.2	1956	156.2	1957	156.2	1958	156.2	1959	156.2	1960	156.2	1961	156.2	1962	156.2	1963	156.2	1964	156.2
1954	154.9	1955	154.9	1956	154.9	1957	154.9	1958	154.9	1959	154.9	1960	154.9	1961	154.9	1962	154.9	1963	154.9	1964	154.9	1965	154.9
1955	153.4	1956	153.4	1957	153.4	1958	153.4	1959	153.4	1960	153.4	1961	153.4	1962	153.4	1963	153.4	1964	153.4	1965	153.4	1966	153.4
1956	151.8	1957	151.8	1958	151.8	1959	151.8	1960	151.8	1961	151.8	1962	151.8	1963	151.8	1964	151.8	1965	151.8	1966	151.8	1967	151.8
1957	150.1	1958	150.1	1959	150.1	1960	150.1	1961	150.1	1962	150.1	1963	150.1	1964	150.1	1965	150.1	1966	150.1	1967	150.1	1968	122.3
1958	148.3	1959	148.3	1960	148.3	1961	148.3	1962	148.3	1963	148.3	1964	148.3	1965	148.3	1966	148.3	1967	148.3	1968	120.2	1969	120.2
1959	146.3	1960	146.3	1961	146.3	1962	146.3	1963	146.3	1964	146.3	1965	146.3	1966	146.3	1967	146.3	1968	118.0	1969	118.0	1970	119.4
1960	144.2	1961	144.2	1962	144.2	1963	144.2	1964	144.2	1965	144.2	1966	144.2	1967	144.2	1968	115.6	1969	115.6	1970	116.5	1971	116.5
1961	142.0	1962	142.0	1963	142.0	1964	142.0	1965	142.0	1966	142.0	1967	142.0	1968	113.1	1969	113.1	1970	113.5	1971	113.5	1972	102.0
1962	139.7	1963	139.7	1964	139.7	1965	139.7	1966	139.7	1967	139.7	1968	110.5	1969	110.5	1970	110.3	1971	110.3	1972	99.5	1973	99.5
1963	137.3	1964	137.3	1965	137.3	1966	137.3	1967	137.3	1968	107.7	1969	107.7	1970	106.9	1971	106.9	1972	96.9	1973	96.9	1974	96.9
1964	134.7	1965	134.7	1966	134.7	1967	134.7	1968	104.8	1969	104.8	1970	103.3	1971	103.3	1972	94.1	1973	94.1	1974	94.1	1975	72.1
1965	132.0	1966	132.0	1967	132.0	1968	101.8	1969	101.8	1970	99.6	1971	99.6	1972	91.2	1973	91.2	1974	91.2	1975	68.7	1976	68.7
1966	129.2	1967	129.2	1968	98.6	1969	98.6	1970	95.7	1971	95.7	1972	88.1	1973	88.1	1974	88.1	1975	65.1	1976	65.1	1977	34.2
1967	126.3	1968	95.3	1969	95.3	1970	91.6	1971	91.6	1972	85.0	1973	85.0	1974	85.0	1975	61.4	1976	61.4	1977	30.5	1978	50.4
1968	91.9	1969	91.9	1970	87.4	1971	87.4	1972	81.7	1973	81.7	1974	81.7	1975	57.6	1976	57.6	1977	26.6	1978	46.5	1979	46.5
1969	88.3	1970	83.0	1971	83.0	1972	78.3	1973	78.3	1974	78.3	1975	53.5	1976	53.5	1977	22.6	1978	42.5	1979	42.5	1980	21.3
1970	80.2	1971	80.2	1972	76.1	1973	76.1	1974	76.1	1975	51.0	1976	51.0	1977	20.1	1978	39.9	1979	39.9	1980	18.7	1981	12.6

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	158.6	1964	158.6	1965	158.6	1966	158.6	1967	158.6	1968	131.9	1969	131.9	1970	136.6	1971	136.6	1972	120.0	1973	120.0	1974	120.0
1964	157.5	1965	157.5	1966	157.5	1967	157.5	1968	130.6	1969	130.6	1970	135.0	1971	135.0	1972	118.8	1973	118.8	1974	118.8	1975	101.0
1965	156.2	1966	156.2	1967	156.2	1968	129.2	1969	129.2	1970	133.3	1971	133.3	1972	117.4	1973	117.4	1974	117.4	1975	99.5	1976	99.5
1966	154.9	1967	154.9	1968	127.7	1969	127.7	1970	131.4	1971	131.4	1972	116.0	1973	116.0	1974	116.0	1975	97.7	1976	97.7	1977	66.8
1967	153.4	1968	126.0	1969	126.0	1970	129.3	1971	129.3	1972	114.4	1973	114.4	1974	114.4	1975	95.9	1976	95.9	1977	64.9	1978	84.8
1968	124.2	1969	124.2	1970	127.1	1971	127.1	1972	112.6	1973	112.6	1974	112.6	1975	93.8	1976	93.8	1977	62.9	1978	82.8	1979	82.8
1969	122.3	1970	124.7	1971	124.7	1972	110.8	1973	110.8	1974	110.8	1975	91.6	1976	91.6	1977	60.7	1978	80.6	1979	80.6	1980	59.4
1970	122.2	1971	122.2	1972	108.8	1973	108.8	1974	108.8	1975	89.3	1976	89.3	1977	58.4	1978	78.2	1979	78.2	1980	57.1	1981	68.1
1971	119.4	1972	106.6	1973	106.6	1974	106.6	1975	86.8	1976	86.8	1977	55.9	1978	75.7	1979	75.7	1980	54.6	1981	64.5	1982	63.0
1972	104.4	1973	104.4	1974	104.4	1975	84.2	1976	84.2	1977	53.3	1978	73.1	1979	73.1	1980	51.9	1981	60.6	1982	59.1	1983	58.9
1973	102.0	1974	102.0	1975	81.4	1976	81.4	1977	50.5	1978	70.3	1979	70.3	1980	49.1	1981	56.6	1982	55.1	1983	54.9	1984	52.8
1974	99.5	1975	78.4	1976	78.4	1977	47.5	1978	67.4	1979	67.4	1980	46.2	1981	52.3	1982	50.7	1983	50.6	1984	48.5	1985	48.5
1975	75.3	1976	75.3	1977	44.4	1978	64.3	1979	64.3	1980	43.1	1981	47.9	1982	46.2	1983	46.1	1984	43.9	1985	43.9	1986	43.9
1976	72.1	1977	41.2	1978	61.0	1979	61.0	1980	39.9	1981	43.2	1982	41.5	1983	41.3	1984	39.1	1985	39.1	1986	39.1	1987	39.1
1977	37.8	1978	57.6	1979	57.6	1980	36.4	1981	38.2	1982	36.5	1983	36.3	1984	34.1	1985	34.1	1986	34.1	1987	34.1	1988	34.1
1978	54.1	1979	54.1	1980	32.9	1981	33.1	1982	31.3	1983	31.2	1984	28.8	1985	28.8	1986	28.8	1987	28.8	1988	28.8	1989	28.8
1979	50.4	1980	29.2	1981	27.7	1982	25.9	1983	25.8	1984	23.4	1985	23.4	1986	23.4	1987	23.4	1988	23.4	1989	23.4	1990	23.4
1980	25.3	1981	22.1	1982	20.3	1983	20.1	1984	17.6	1985	17.6	1986	17.6	1987	17.6	1988	17.6	1989	17.6	1990	17.6	1991	17.6
1981	16.3	1982	14.5	1983	14.3	1984	11.7	1985	11.7	1986	11.7	1987	11.7	1988	11.7	1989	11.7	1990	11.7	1991	11.7	1992	11.7
1982	10.7	1983	10.5	1984	7.9	1985	7.9	1986	7.9	1987	7.9	1988	7.9	1989	7.9	1990	7.9	1991	7.9	1992	7.9	1993	7.9

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.1.4A.

DATE: MARCH 31, 1981

TABLE 3.1.2C

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	2.0	1952	2.0	1953	2.0	1954	2.0	1955	2.0	1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0
1952	2.0	1953	2.0	1954	2.0	1955	2.0	1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0
1953	2.0	1954	2.0	1955	2.0	1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0
1954	2.0	1955	2.0	1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0
1955	2.0	1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0
1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0
1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9
1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9
1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9
1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9
1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9
1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.3
1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.3	1974	2.3
1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.2	1974	2.2	1975	2.0
1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.2	1974	2.2	1975	2.0	1976	2.0
1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.1	1974	2.1	1975	1.9	1976	1.9	1977	1.9
1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.1	1974	2.1	1975	1.9	1976	1.9	1977	1.8	1978	1.4
1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.0	1974	2.0	1975	1.8	1976	1.8	1977	1.7	1978	1.3	1979	1.3
1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.0	1974	2.0	1975	1.7	1976	1.7	1977	1.5	1978	1.1	1979	1.1	1980	1.1
1970	2.9	1971	2.9	1972	2.9	1973	1.9	1974	1.9	1975	1.7	1976	1.7	1977	1.4	1978	1.0	1979	1.0	1980	1.0	1981	0.8

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.6	1974	2.6
1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.6	1974	2.6	1975	2.4
1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.6	1974	2.6	1975	2.4	1976	2.4
1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.6	1974	2.6	1975	2.4	1976	2.4	1977	3.1
1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.5	1974	2.5	1975	2.3	1976	2.3	1977	3.0	1978	2.6
1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.5	1974	2.5	1975	2.3	1976	2.3	1977	2.9	1978	2.5	1979	2.5
1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.5	1974	2.5	1975	2.3	1976	2.3	1977	2.9	1978	2.5	1979	2.5	1980	2.5
1970	2.9	1971	2.9	1972	2.9	1973	2.5	1974	2.5	1975	2.2	1976	2.2	1977	2.8	1978	2.4	1979	2.4	1980	2.4	1981	2.8
1971	2.9	1972	2.9	1973	2.4	1974	2.4	1975	2.2	1976	2.2	1977	2.7	1978	2.3	1979	2.3	1980	2.3	1981	2.7	1982	2.7
1972	2.9	1973	2.4	1974	2.4	1975	2.2	1976	2.2	1977	2.6	1978	2.2	1979	2.2	1980	2.2	1981	2.5	1982	2.5	1983	2.5
1973	2.3	1974	2.3	1975	2.1	1976	2.1	1977	2.5	1978	2.1	1979	2.1	1980	2.1	1981	2.4	1982	2.4	1983	2.4	1984	2.4
1974	2.3	1975	2.1	1976	2.1	1977	2.4	1978	2.0	1979	2.0	1980	2.0	1981	2.2	1982	2.2	1983	2.2	1984	2.2	1985	2.2
1975	2.0	1976	2.0	1977	2.3	1978	1.9	1979	1.9	1980	1.9	1981	2.1	1982	2.1	1983	2.1	1984	2.1	1985	2.1	1986	2.1
1976	2.0	1977	2.2	1978	1.8	1979	1.8	1980	1.8	1981	1.9	1982	1.9	1983	1.9	1984	1.9	1985	1.9	1986	1.9	1987	1.9
1977	2.1	1978	1.7	1979	1.7	1980	1.7	1981	1.7	1982	1.7	1983	1.7	1984	1.7	1985	1.7	1986	1.7	1987	1.7	1988	1.7
1978	1.5	1979	1.5	1980	1.5	1981	1.5	1982	1.5	1983	1.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5
1979	1.4	1980	1.4	1981	1.3	1982	1.3	1983	1.3	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3
1980	1.3	1981	1.1	1982	1.1	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1	1988	1.1	1989	1.1	1990	1.1	1991	1.1
1981	0.9	1982	0.9	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9	1991	0.9	1992	0.9
1982	0.8	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8	1993	0.8

*MY -- Indicates the model year.

**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.1.4A.

DATE: MARCH 31, 1981

TABLE 3.1.3

IDLE EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1968	1.63	0.03
	1968-1969	0.76	0.06
	1970-1971	0.71	0.07
	1972-1974	0.74	0.04
	1975-1976	0.27	0.07
	1977	0.12	0.03
	1978-1979	0.24	0.03
	1980	0.05	0.03
	1981	0.07	0.03
	1982	0.06	0.03
	1983	0.06	0.03
	1984+	0.05	0.03
CO	Pre-1968	15.98	0.40
	1968-1969	11.24	0.63
	1970-1971	12.93	0.88
	1972-1974	13.99	0.76
	1975-1976	7.42	0.85
	1977	2.87	0.42
	1978-1979	5.79	0.42
	1980	2.68	0.42
	1981	1.74	0.61
	1982	1.46	0.61
	1983	1.44	0.61
	1984+	1.06	0.62
NOx	Pre-1968	0.11	0.0
	1968-1972	0.09	0.0
	1973-1974	0.07	0.0
	1975-1976	0.07	0.0
	1977	0.06	0.0
	1978-1979	0.04	0.0
	1980	0.04	0.0
	1981	0.03	0.01
	1982	0.03	0.01
	1983	0.03	0.01
	1984+	0.03	0.01

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.1.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.072	14400.	0.024	14400.	1800.
2	0.101	13900.	0.101	14275.	10784.
3	0.092	13400.	0.092	13775.	24809.
4	0.071	12800.	0.071	13250.	38331.
5	0.092	12300.	0.092	12675.	51284.
6	0.103	11800.	0.103	12175.	63709.
7	0.089	11200.	0.089	11650.	75631.
8	0.071	10700.	0.071	11075.	86984.
9	0.066	10200.	0.066	10575.	97809.
10	0.059	9600.	0.059	10050.	108131.
11	0.048	9100.	0.048	9475.	117884.
12	0.035	8600.	0.035	8975.	127109.
13	0.030	8000.	0.030	8450.	135831.
14	0.023	7500.	0.023	7875.	143984.
15	0.015	7000.	0.015	7375.	151609.
16	0.010	6400.	0.010	6850.	158731.
17	0.005	5900.	0.005	6275.	165284.
18	0.003	5400.	0.003	5775.	171309.
19	0.002	4900.	0.002	5275.	176833.
20+	0.015	4300.	0.015	4750.	181855.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 3.1.4B

FLEET SALES FRACTION* FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

Model Years	Sales Fraction
Pre-1975	1.000
1975	0.998
1976	0.997
1977	0.995
1978	0.991
1979	0.972
1980	0.966
1981	0.953
1982	0.925
1983	0.911
1984	0.905
1985	0.886
1986	0.862
1987	0.835
1988	0.824
1989	0.813
1990	0.803
1991+	0.800

* The estimated fraction of the light duty vehicle model year fleet which is gasoline powered.

DATE: MARCH 31, 1981

TABLE 3.1.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) LDV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDGV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.024	0.886	0.021	0.023	14400.	335.3	0.029
1984	0.101	0.905	0.091	0.100	14275.	1425.3	0.124
1983	0.092	0.911	0.084	0.092	13775.	1263.7	0.110
1982	0.071	0.925	0.065	0.072	13250.	948.8	0.082
1981	0.092	0.953	0.087	0.095	12675.	1209.8	0.105
1980	0.103	0.966	0.099	0.108	12175.	1319.4	0.115
1979	0.089	0.972	0.086	0.094	11650.	1099.5	0.096
1978	0.071	0.991	0.071	0.077	11075.	854.4	0.074
1977	0.066	0.995	0.066	0.072	10575.	758.2	0.066
1976	0.059	0.997	0.059	0.064	10050.	647.5	0.056
1975	0.048	0.998	0.048	0.052	9475.	494.2	0.043
1974	0.035	1.000	0.035	0.038	8975.	342.5	0.030
1973	0.030	1.000	0.030	0.033	8450.	277.2	0.024
1972	0.023	1.000	0.023	0.025	7875.	198.0	0.017
1971	0.015	1.000	0.015	0.016	7375.	121.0	0.011
1970	0.010	1.000	0.010	0.011	6850.	74.1	0.006
1969	0.005	1.000	0.005	0.006	6275.	37.7	0.003
1968	0.003	1.000	0.003	0.003	5775.	15.8	0.001
1967	0.002	1.000	0.002	0.002	5275.	9.8	0.001
1966-	0.015	1.000	0.015	0.016	4750.	75.8	0.007
		DAF:	0.915		TFNORM:	11507.9	

WHERE:

- A = January 1 registration mix from Table 3.1.4A.
- B = Fleet sales fractions from Table 3.1.4B.
- D = Sales weighted fleet mileage accumulation rate from Table 3.1.4A, adjusted to January 1.
- D(1) = Annual Miles(1)
- D(MYI) = .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,....,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 3.1.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5, \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1968	0.224612E+01	-0.290973E+00	0.158890E-01	-0.472494E-03	0.694077E-05	-0.392798E-07
1968	0.202779E+01	-0.273049E+00	0.153577E-01	-0.460304E-03	0.678527E-05	-0.384880E-07
1969	0.215056E+01	-0.283620E+00	0.153836E-01	-0.462136E-03	0.628732E-05	-0.346311E-07
1970	0.223021E+01	-0.293648E+00	0.162356E-01	-0.484148E-03	0.711591E-05	-0.402861E-07
1971	0.212230E+01	-0.291072E+00	0.169089E-01	-0.526148E-03	0.802705E-05	-0.470117E-07
1972	0.215361E+01	-0.283451E+00	0.156948E-01	-0.469759E-03	0.693832E-05	-0.394707E-07
1973-1974	0.211340E+01	-0.285676E+00	0.163180E-01	-0.500793E-03	0.755067E-05	-0.437187E-07
1975+	0.239540E+01	-0.335781E+00	0.211609E-01	-0.731550E-03	0.120715E-04	-0.748566E-07
CO :						
PRE-1968	0.181978E+01	-0.254663E+00	0.152347E-01	-0.487397E-03	0.758207E-05	-0.449514E-07
1968	0.186919E+01	-0.276679E+00	0.172335E-01	-0.558279E-03	0.871678E-05	-0.516980E-07
1969	0.182133E+01	-0.272054E+00	0.170304E-01	-0.552021E-03	0.862543E-05	-0.511440E-07
1970	0.201421E+01	-0.295188E+00	0.186353E-01	-0.621606E-03	0.993657E-05	-0.599779E-07
1971	0.204533E+01	-0.310618E+00	0.204852E-01	-0.708527E-03	0.116215E-04	-0.715690E-07
1972	0.231868E+01	-0.341147E+00	0.209446E-01	-0.665891E-03	0.102225E-04	-0.598264E-07
1973-1974	0.215487E+01	-0.329116E+00	0.210112E-01	-0.689057E-03	0.108390E-04	-0.647125E-07
1975+	0.248747E+01	-0.391562E+00	0.270721E-01	-0.976178E-03	0.165270E-04	-0.104317E-06
NOx:						
PRE-1968	0.244424E+01	-0.250107E+00	0.138293E-01	-0.287025E-03	0.207585E-05	0.0
1968	0.188656E+01	-0.161289E+00	0.904985E-02	-0.185609E-03	0.132555E-05	0.0
1969	0.155777E+01	-0.113032E+00	0.671832E-02	-0.143409E-03	0.106079E-05	0.0
1970	0.204516E+01	-0.194014E+00	0.110736E-01	-0.231754E-03	0.168372E-05	0.0
1971	0.169262E+01	-0.121861E+00	0.703020E-02	-0.146293E-03	0.106141E-05	0.0
1972	0.144825E+01	-0.122444E+00	0.795024E-02	-0.171078E-03	0.125777E-05	0.0
1973-1974	0.153447E+01	-0.125671E+00	0.785919E-02	-0.169428E-03	0.125494E-05	0.0
1975+	0.942131E+00	-0.423240E-01	0.386253E-02	-0.839853E-04	0.753883E-06	0.0

Where:
- s = average speed (mph)
- sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w.
  [1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 3.1.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1968	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1968-1969	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1970-1971	-0.21255E-01	-0.10888E-01	-0.52755E-03	-0.47925E-03	0.93659E-03	0.76666E-02
	1972-1974	-0.21427E-01	-0.66107E-02	-0.39442E-03	0.26288E-02	0.49731E-02	0.12320E-01
	1975-1979	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1980	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1981	-0.25217E-01	0.11959E-01	-0.56153E-02	-0.12627E-04	-0.36228E-02	0.78765E-02
	1982+	-0.25217E-01	0.11959E-01	-0.56153E-02	-0.12627E-04	-0.36228E-02	0.78765E-02
CO	Pre-1968	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1968-1969	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1970-1971	-0.20843E-01	-0.21165E-01	-0.59951E-02	0.23603E-01	0.18253E-02	0.28483E-01
	1972-1974	-0.19091E-01	-0.13146E-01	-0.42373E-03	0.24717E-01	0.57982E-02	0.25848E-01
	1975-1979	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1980	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1981	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
	1982	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
	1983+	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
NOx	Pre-1968	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1968-1972	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01
	1973-1974	0.38855E-02	-0.18301E-01	-0.24156E-02	-0.10925E-01	-0.21188E-02	-0.18042E-01
	1975-1976	-0.45504E-04	-0.71420E-02	-0.12575E-02	-0.87910E-02	-0.53153E-03	-0.75470E-02
	1977-1979	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1980	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1981+	0.15668E-02	-0.34416E-01	0.59496E-03	-0.35871E-01	-0.24888E-02	-0.28830E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 3.1.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

DATE: MARCH 31, 1981

TABLE 3.1.7B

NORMALIZED BAG FRACTIONS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1968	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1968-1969	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1970-1971	1.345	0.178	0.919	0.118	0.894	0.093	1.000	0.124
	1972-1974	1.398	0.060	0.885	0.055	0.919	0.036	1.000	0.051
	1975-1979	2.092	0.248	0.649	0.254	0.846	0.152	1.000	0.225
	1980	2.092	1.339	0.649	1.014	0.846	0.717	1.000	1.000
	1981	2.961	0.154	0.407	0.585	0.652	0.552	1.000	0.487
	1982+	2.961	0.164	0.407	0.598	0.652	0.566	1.000	0.500
CO	Pre-1968	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1968-1969	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1970-1971	1.553	0.109	0.933	0.079	0.711	0.038	1.000	0.074
	1972-1974	1.573	0.054	0.902	0.079	0.755	0.029	1.000	0.060
	1975-1979	2.413	0.143	0.608	0.180	0.681	0.068	1.000	0.142
	1980	2.413	0.657	0.608	0.503	0.681	0.251	1.000	0.466
	1981	3.184	0.485	0.345	0.542	0.601	0.438	1.000	0.502
	1982	3.184	0.516	0.345	0.564	0.601	0.457	1.000	0.525
	1983+	3.184	0.551	0.345	0.589	0.601	0.479	1.000	0.551
NOx	Pre-1968	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1968-1972	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0
	1973-1974	1.262	0.022	0.770	0.004	1.242	0.027	1.000	0.014
	1975-1976	1.311	0.021	0.774	0.010	1.198	0.026	1.000	0.017
	1977-1979	1.393	0.050	0.754	0.052	1.172	0.079	1.000	0.059
	1980	1.393	0.056	0.754	0.056	1.172	0.085	1.000	0.064
	1981+	1.801	0.169	0.653	0.141	1.059	0.296	1.000	0.189

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.1.8A

AIR CONDITIONING CORRECTION FACTORS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* ACCF= U*V*(A + B*(T-75) -1) + 1

Model Years	HC		CO		NOx	
	A	B	A	B	A	B
Pre-1975	0.1023E+01	0.3344E-02	0.1202E+01	0.1808E-02	0.1299E+01	0.5643E-04
1975+	0.1000E+01	0.3512E-02	0.1130E+01	0.1528E-02	0.1221E+01	0.4262E-03

*WHERE:
- ACCF = Air Conditioning Correction Factor
- V = Fraction of vehicles which are equipped with AC given in Table 3.1.8B
- U = Fraction of vehicles with AC that are using it = (DI-DILO)/(DIHI-DI), 0<=U<=1
- DI = Discomfort index = (DB+WB)*.4+15
- DILO = The highest discomfort index where no AC is used
- DIHI = The lowest discomfort index where all vehicles with AC use it
- DB = Dry bulb temperature (Fahrenheit)
- WB = Wet bulb temperature (Fahrenheit)
- T = Ambient temperature (Fahrenheit)

TABLE 3.1.8B

ESTIMATED FRACTION OF
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES
EQUIPPED WITH AIR CONDITIONING

Model Years	Fraction Equipped With Air Conditioning
Pre-1962	0.07
1962-1964	0.14
1965-1966	0.24
1967-1968	0.37
1969-1971	0.51
1972-1976	0.61
1977+	0.72

DATE: MARCH 31, 1981

TABLE 3.1.9

EXTRA LOAD CORRECTION FACTORS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* XLCF = (XLC-1)*U + 1

Model Years	Coefficients (XLC) HC	CO	NOx
Pre-1968	1.0786	1.2765	0.9535
1968-1969	1.0495	1.1384	1.0313
1970-1971	1.0852	1.2478	1.0313
1972	1.0556	1.1347	1.0313
1973-1974	1.0556	1.1347	1.0753
1975+	1.0455	1.3058	1.0719

* WHERE:
XLCF = Extra load correction factor
U = Fraction of VMT with an extra load
XLC = Correction factor coefficient

TABLE 3.1.10

TRAILER TOWING CORRECTION FACTORS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED VEHICLES

* TTCF = (TTC-1)*U + 1

Model Years	Coefficients (TTC) HC	CO	NOx
Pre-1968	1.2614	1.9327	1.1184
1968-1969	1.2762	1.8940	1.1384
1970-1971	1.4598	2.4753	1.1384
1972	1.7288	2.1414	1.1384
1973-1974	1.7288	2.1414	1.2170
1975+	1.5909	3.9722	1.3875

* WHERE:
TTCF = Trailer towing correction factor
U = Fraction of VMT towing a trailer
TTC = Correction factor coefficient

DATE: MARCH 31, 1981

TABLE 3.2.1A

EXHAUST EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS 1

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1968	9.35	0.18	10.25
	1968-1969	5.60	0.25	6.85
	1970-1971	4.58	0.37	6.43
	1972-1974	4.58	0.17	5.43
	1975-1976	3.44	0.29	4.89
	1977	1.53	0.29	2.98
	1978	3.00	0.29	4.45
	1979-1980	1.61	0.29	3.06
	1981	1.47	0.26	2.77
	1982	1.04	0.26	2.34
	1983	1.04	0.26	2.34
	1984	0.58	0.14	1.28
	1985+	0.48	0.14	1.18
CO	Pre-1968	117.70	2.25	128.95
	1968-1969	85.54	2.25	96.79
	1970-1971	79.64	3.13	95.29
	1972-1974	75.63	2.44	87.83
	1975-1976	62.35	2.86	76.65
	1977	24.16	2.86	38.46
	1978	48.67	2.86	62.97
	1979-1980	27.20	2.86	41.50
	1981	20.50	2.43	32.65
	1982	16.52	2.35	28.27
	1983	16.52	2.35	28.27
	1984	6.14	1.35	12.89
	1985+	4.38	2.45	16.63
NOx	Pre-1968	1.96	0.0	1.96
	1968-1972	2.91	0.0	2.91
	1973-1974	1.91	0.04	2.11
	1975-1976	2.07	0.04	2.27
	1977	2.48	0.04	2.68
	1978	1.78	0.04	1.98
	1979-1980	1.12	0.10	1.62
	1981	1.91	0.10	2.41
	1982-1983	1.90	0.10	2.40
	1984	1.42	0.08	1.82
	1985+	0.59	0.09	1.04

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.2, for the emission standards.

DATE: MARCH 31, 1981

TABLE 3.2.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1963	19.07	3.05	33.90	26.30	5.29	8.79
1963-1967	19.07	3.05	33.90	26.30	1.03	4.53
1968-1970	19.07	3.05	33.90	26.30	0.0	3.50
1971	14.18	3.05	21.16	26.30	0.0	2.45
1972-1976	10.75	3.05	11.67	26.30	0.0	1.69
1977	8.27	3.05	8.98	26.30	0.0	1.30
1978-1980	2.03	3.05	3.45	26.30	0.0	0.37
1981+	0.82	3.05	1.39	26.30	0.0	0.15

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 3.2.2A

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	12.1	1952	12.1	1953	12.1	1954	12.1	1955	12.1	1956	12.1	1957	12.1	1958	12.1	1959	12.1	1960	12.1	1961	12.1	1962	12.1
1952	12.0	1953	12.0	1954	12.0	1955	12.0	1956	12.0	1957	12.0	1958	12.0	1959	12.0	1960	12.0	1961	12.0	1962	12.0	1963	12.0
1953	11.9	1954	11.9	1955	11.9	1956	11.9	1957	11.9	1958	11.9	1959	11.9	1960	11.9	1961	11.9	1962	11.9	1963	11.9	1964	11.9
1954	11.8	1955	11.8	1956	11.8	1957	11.8	1958	11.8	1959	11.8	1960	11.8	1961	11.8	1962	11.8	1963	11.8	1964	11.8	1965	11.8
1955	11.7	1956	11.7	1957	11.7	1958	11.7	1959	11.7	1960	11.7	1961	11.7	1962	11.7	1963	11.7	1964	11.7	1965	11.7	1966	11.7
1956	11.6	1957	11.6	1958	11.6	1959	11.6	1960	11.6	1961	11.6	1962	11.6	1963	11.6	1964	11.6	1965	11.6	1966	11.6	1967	11.6
1957	11.5	1958	11.5	1959	11.5	1960	11.5	1961	11.5	1962	11.5	1963	11.5	1964	11.5	1965	11.5	1966	11.5	1967	11.5	1968	8.6
1958	11.4	1959	11.4	1960	11.4	1961	11.4	1962	11.4	1963	11.4	1964	11.4	1965	11.4	1966	11.4	1967	11.4	1968	8.5	1969	8.5
1959	11.3	1960	11.3	1961	11.3	1962	11.3	1963	11.3	1964	11.3	1965	11.3	1966	11.3	1967	11.3	1968	8.3	1969	8.3	1970	8.6
1960	11.2	1961	11.2	1962	11.2	1963	11.2	1964	11.2	1965	11.2	1966	11.2	1967	11.2	1968	8.2	1969	8.2	1970	8.4	1971	8.4
1961	11.1	1962	11.1	1963	11.1	1964	11.1	1965	11.1	1966	11.1	1967	11.1	1968	8.0	1969	8.0	1970	8.1	1971	8.1	1972	6.2
1962	10.9	1963	10.9	1964	10.9	1965	10.9	1966	10.9	1967	10.9	1968	7.8	1969	7.8	1970	7.8	1971	7.8	1972	6.1	1973	6.1
1963	10.8	1964	10.8	1965	10.8	1966	10.8	1967	10.8	1968	7.6	1969	7.6	1970	7.5	1971	7.5	1972	5.9	1973	5.9	1974	5.9
1964	10.6	1965	10.6	1966	10.6	1967	10.6	1968	7.4	1969	7.4	1970	7.2	1971	7.2	1972	5.8	1973	5.8	1974	5.8	1975	5.5
1965	10.4	1966	10.4	1967	10.4	1968	7.1	1969	7.1	1970	6.8	1971	6.8	1972	5.6	1973	5.6	1974	5.6	1975	5.2	1976	5.2
1966	10.3	1967	10.3	1968	6.9	1969	6.9	1970	6.4	1971	6.4	1972	5.4	1973	5.4	1974	5.4	1975	4.9	1976	4.9	1977	3.0
1967	10.1	1968	6.6	1969	6.6	1970	6.0	1971	6.0	1972	5.2	1973	5.2	1974	5.2	1975	4.6	1976	4.6	1977	2.7	1978	4.1
1968	6.3	1969	6.3	1970	5.5	1971	5.5	1972	5.0	1973	5.0	1974	5.0	1975	4.2	1976	4.2	1977	2.3	1978	3.8	1979	2.4
1969	5.9	1970	5.0	1971	5.0	1972	4.8	1973	4.8	1974	4.8	1975	3.8	1976	3.8	1977	1.9	1978	3.3	1979	1.9	1980	1.9
1970	4.7	1971	4.7	1972	4.6	1973	4.6	1974	4.6	1975	3.5	1976	3.5	1977	1.6	1978	3.1	1979	1.7	1980	1.7	1981	1.5

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	12.1	1964	12.1	1965	12.1	1966	12.1	1967	12.1	1968	9.4	1969	9.4	1970	10.2	1971	10.2	1972	7.1	1973	7.1	1974	7.1
1964	12.0	1965	12.0	1966	12.0	1967	12.0	1968	9.3	1969	9.3	1970	10.0	1971	10.0	1972	7.1	1973	7.1	1974	7.1	1975	7.7
1965	11.9	1966	11.9	1967	11.9	1968	9.1	1969	9.1	1970	9.8	1971	9.8	1972	7.0	1973	7.0	1974	7.0	1975	7.6	1976	7.6
1966	11.8	1967	11.8	1968	9.0	1969	9.0	1970	9.7	1971	9.7	1972	6.9	1973	6.9	1974	6.9	1975	7.4	1976	7.4	1977	5.5
1967	11.7	1968	8.9	1969	8.9	1970	9.5	1971	9.5	1972	6.8	1973	6.8	1974	6.8	1975	7.3	1976	7.3	1977	5.4	1978	6.8
1968	8.8	1969	8.8	1970	9.3	1971	9.3	1972	6.7	1973	6.7	1974	6.7	1975	7.1	1976	7.1	1977	5.2	1978	6.7	1979	5.3
1969	8.6	1970	9.1	1971	9.1	1972	6.6	1973	6.6	1974	6.6	1975	7.0	1976	7.0	1977	5.0	1978	6.5	1979	5.1	1980	5.1
1970	8.8	1971	8.8	1972	6.5	1973	6.5	1974	6.5	1975	6.8	1976	6.8	1977	4.9	1978	6.3	1979	4.9	1980	4.9	1981	4.5
1971	8.6	1972	6.4	1973	6.4	1974	6.4	1975	6.6	1976	6.6	1977	4.7	1978	6.2	1979	4.8	1980	4.8	1981	4.3	1982	3.9
1972	6.3	1973	6.3	1974	6.3	1975	6.4	1976	6.4	1977	4.5	1978	6.0	1979	4.6	1980	4.6	1981	4.1	1982	3.7	1983	3.7
1973	6.2	1974	6.2	1975	6.2	1976	6.2	1977	4.3	1978	5.8	1979	4.4	1980	4.4	1981	3.9	1982	3.5	1983	3.5	1984	1.9
1974	6.1	1975	6.0	1976	6.0	1977	4.1	1978	5.5	1979	4.1	1980	4.1	1981	3.7	1982	3.3	1983	3.3	1984	1.8	1985	1.7
1975	5.7	1976	5.7	1977	3.8	1978	5.3	1979	3.9	1980	3.9	1981	3.5	1982	3.1	1983	3.1	1984	1.7	1985	1.6	1986	1.6
1976	5.5	1977	3.6	1978	5.0	1979	3.7	1980	3.7	1981	3.3	1982	2.9	1983	2.9	1984	1.6	1985	1.5	1986	1.5	1987	1.5
1977	3.3	1978	4.8	1979	3.4	1980	3.4	1981	3.1	1982	2.6	1983	2.6	1984	1.4	1985	1.3	1986	1.3	1987	1.3	1988	1.3
1978	4.5	1979	3.1	1980	3.1	1981	2.8	1982	2.4	1983	2.4	1984	1.3	1985	1.2	1986	1.2	1987	1.2	1988	1.2	1989	1.2
1979	2.7	1980	2.7	1981	2.5	1982	2.1	1983	2.1	1984	1.1	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0	1990	1.0
1980	2.4	1981	2.1	1982	1.7	1983	1.7	1984	0.9	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1981	1.8	1982	1.3	1983	1.3	1984	0.7	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6
1982	1.1	1983	1.1	1984	0.6	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5	1992	0.5	1993	0.5

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.2.4A.

DATE: MARCH 31, 1981

TABLE 3.2.2B

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	151.6	1952	151.6	1953	151.6	1954	151.6	1955	151.6	1956	151.6	1957	151.6	1958	151.6	1959	151.6	1960	151.6	1961	151.6	1962	151.6
1952	150.6	1953	150.6	1954	150.6	1955	150.6	1956	150.6	1957	150.6	1958	150.6	1959	150.6	1960	150.6	1961	150.6	1962	150.6	1963	150.6
1953	149.6	1954	149.6	1955	149.6	1956	149.6	1957	149.6	1958	149.6	1959	149.6	1960	149.6	1961	149.6	1962	149.6	1963	149.6	1964	149.6
1954	148.5	1955	148.5	1956	148.5	1957	148.5	1958	148.5	1959	148.5	1960	148.5	1961	148.5	1962	148.5	1963	148.5	1964	148.5	1965	148.5
1955	147.4	1956	147.4	1957	147.4	1958	147.4	1959	147.4	1960	147.4	1961	147.4	1962	147.4	1963	147.4	1964	147.4	1965	147.4	1966	147.4
1956	146.2	1957	146.2	1958	146.2	1959	146.2	1960	146.2	1961	146.2	1962	146.2	1963	146.2	1964	146.2	1965	146.2	1966	146.2	1967	146.2
1957	145.0	1958	145.0	1959	145.0	1960	145.0	1961	145.0	1962	145.0	1963	145.0	1964	145.0	1965	145.0	1966	145.0	1967	145.0	1968	112.8
1958	143.6	1959	143.6	1960	143.6	1961	143.6	1962	143.6	1963	143.6	1964	143.6	1965	143.6	1966	143.6	1967	143.6	1968	111.4	1969	111.4
1959	142.2	1960	142.2	1961	142.2	1962	142.2	1963	142.2	1964	142.2	1965	142.2	1966	142.2	1967	142.2	1968	110.0	1969	110.0	1970	113.7
1960	140.7	1961	140.7	1962	140.7	1963	140.7	1964	140.7	1965	140.7	1966	140.7	1967	140.7	1968	108.5	1969	108.5	1970	111.6	1971	111.6
1961	139.1	1962	139.1	1963	139.1	1964	139.1	1965	139.1	1966	139.1	1967	139.1	1968	106.9	1969	106.9	1970	109.4	1971	109.4	1972	98.8
1962	137.4	1963	137.4	1964	137.4	1965	137.4	1966	137.4	1967	137.4	1968	105.2	1969	105.2	1970	107.0	1971	107.0	1972	97.0	1973	97.0
1963	135.5	1964	135.5	1965	135.5	1966	135.5	1967	135.5	1968	103.4	1969	103.4	1970	104.4	1971	104.4	1972	95.0	1973	95.0	1974	95.0
1964	133.5	1965	133.5	1966	133.5	1967	133.5	1968	101.4	1969	101.4	1970	101.7	1971	101.7	1972	92.8	1973	92.8	1974	92.8	1975	82.5
1965	131.4	1966	131.4	1967	131.4	1968	99.2	1969	99.2	1970	98.7	1971	98.7	1972	90.5	1973	90.5	1974	90.5	1975	79.8	1976	79.8
1966	129.1	1967	129.1	1968	96.9	1969	96.9	1970	95.4	1971	95.4	1972	87.9	1973	87.9	1974	87.9	1975	76.8	1976	76.8	1977	38.6
1967	126.5	1968	94.3	1969	94.3	1970	91.8	1971	91.8	1972	85.1	1973	85.1	1974	85.1	1975	73.5	1976	73.5	1977	35.3	1978	59.8
1968	91.4	1969	91.4	1970	87.8	1971	87.8	1972	82.0	1973	82.0	1974	82.0	1975	69.8	1976	69.8	1977	31.6	1978	56.1	1979	34.7
1969	88.2	1970	83.3	1971	83.3	1972	78.5	1973	78.5	1974	78.5	1975	65.7	1976	65.7	1977	27.5	1978	52.0	1979	30.5	1980	30.5
1970	80.3	1971	80.3	1972	76.1	1973	76.1	1974	76.1	1975	62.9	1976	62.9	1977	24.7	1978	49.2	1979	27.8	1980	27.8	1981	21.0

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	151.6	1964	151.6	1965	151.6	1966	151.6	1967	151.6	1968	119.4	1969	119.4	1970	126.8	1971	126.8	1972	112.4	1973	112.4	1974	112.4
1964	150.6	1965	150.6	1966	150.6	1967	150.6	1968	118.5	1969	118.5	1970	125.4	1971	125.4	1972	111.3	1973	111.3	1974	111.3	1975	104.2
1965	149.6	1966	149.6	1967	149.6	1968	117.4	1969	117.4	1970	124.0	1971	124.0	1972	110.2	1973	110.2	1974	110.2	1975	102.9	1976	102.9
1966	148.5	1967	148.5	1968	116.4	1969	116.4	1970	122.5	1971	122.5	1972	109.1	1973	109.1	1974	109.1	1975	101.5	1976	101.5	1977	63.4
1967	147.4	1968	115.2	1969	115.2	1970	121.0	1971	121.0	1972	107.8	1973	107.8	1974	107.8	1975	100.1	1976	100.1	1977	61.9	1978	86.4
1968	114.1	1969	114.1	1970	119.3	1971	119.3	1972	106.5	1973	106.5	1974	106.5	1975	98.6	1976	98.6	1977	60.4	1978	84.9	1979	63.4
1969	112.8	1970	117.5	1971	117.5	1972	105.2	1973	105.2	1974	105.2	1975	97.0	1976	97.0	1977	58.8	1978	83.3	1979	61.8	1980	61.8
1970	115.7	1971	115.7	1972	103.7	1973	103.7	1974	103.7	1975	95.3	1976	95.3	1977	57.1	1978	81.6	1979	60.1	1980	60.1	1981	48.5
1971	113.7	1972	102.2	1973	102.2	1974	102.2	1975	93.5	1976	93.5	1977	55.3	1978	79.8	1979	58.3	1980	58.3	1981	46.9	1982	42.1
1972	100.6	1973	100.6	1974	100.6	1975	91.6	1976	91.6	1977	53.4	1978	77.9	1979	56.4	1980	56.4	1981	45.3	1982	40.5	1983	40.5
1973	98.8	1974	98.8	1975	89.5	1976	89.5	1977	51.3	1978	75.8	1979	54.4	1980	54.4	1981	43.6	1982	38.8	1983	38.8	1984	19.0
1974	97.0	1975	87.3	1976	87.3	1977	49.2	1978	73.7	1979	52.2	1980	52.2	1981	41.7	1982	37.1	1983	37.1	1984	17.9	1985	25.8
1975	85.0	1976	85.0	1977	46.8	1978	71.3	1979	49.9	1980	49.9	1981	39.8	1982	35.1	1983	35.1	1984	16.8	1985	23.8	1986	23.8
1976	82.5	1977	44.3	1978	68.8	1979	47.3	1980	47.3	1981	37.6	1982	33.1	1983	33.1	1984	15.6	1985	21.6	1986	21.6	1987	21.6
1977	41.6	1978	66.1	1979	44.6	1980	44.6	1981	35.3	1982	30.8	1983	30.8	1984	14.4	1985	19.3	1986	19.3	1987	19.3	1988	19.3
1978	63.1	1979	41.6	1980	41.6	1981	32.8	1982	28.4	1983	28.4	1984	13.0	1985	16.7	1986	16.7	1987	16.7	1988	16.7	1989	16.7
1979	38.3	1980	38.3	1981	30.0	1982	25.7	1983	25.7	1984	11.4	1985	13.9	1986	13.9	1987	13.9	1988	13.9	1989	13.9	1990	13.9
1980	34.7	1981	26.8	1982	22.6	1983	22.6	1984	9.7	1985	10.8	1986	10.8	1987	10.8	1988	10.8	1989	10.8	1990	10.8	1991	10.8
1981	23.3	1982	19.3	1983	19.3	1984	7.7	1985	7.2	1986	7.2	1987	7.2	1988	7.2	1989	7.2	1990	7.2	1991	7.2	1992	7.2
1982	17.0	1983	17.0	1984	6.4	1985	4.9	1986	4.9	1987	4.9	1988	4.9	1989	4.9	1990	4.9	1991	4.9	1992	4.9	1993	4.9

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.2.4A.

DATE: MARCH 31, 1981

TABLE 3.2.2C

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	2.0	1952	2.0	1953	2.0	1954	2.0	1955	2.0	1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0
1952	2.0	1953	2.0	1954	2.0	1955	2.0	1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0
1953	2.0	1954	2.0	1955	2.0	1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0
1954	2.0	1955	2.0	1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0
1955	2.0	1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0
1956	2.0	1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0
1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9
1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9
1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9
1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9
1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9
1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.3
1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.2	1974	2.2
1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.2	1974	2.2	1975	2.4
1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.2	1974	2.2	1975	2.3	1976	2.3
1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.1	1974	2.1	1975	2.3	1976	2.3	1977	2.7
1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.1	1974	2.1	1975	2.2	1976	2.2	1977	2.6	1978	1.9
1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.0	1974	2.0	1975	2.2	1976	2.2	1977	2.6	1978	1.9	1979	1.4
1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.0	1974	2.0	1975	2.1	1976	2.1	1977	2.5	1978	1.8	1979	1.2	1980	1.2
1970	2.9	1971	2.9	1972	2.9	1973	1.9	1974	1.9	1975	2.1	1976	2.1	1977	2.5	1978	1.8	1979	1.1	1980	1.1	1981	1.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.5	1974	2.5
1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.5	1974	2.5	1975	2.7
1965	2.0	1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.5	1974	2.5	1975	2.6	1976	2.6
1966	2.0	1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.5	1974	2.5	1975	2.6	1976	2.6	1977	3.0
1967	2.0	1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.4	1974	2.4	1975	2.6	1976	2.6	1977	3.0	1978	2.3
1968	2.9	1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.4	1974	2.4	1975	2.6	1976	2.6	1977	3.0	1978	2.3	1979	2.4
1969	2.9	1970	2.9	1971	2.9	1972	2.9	1973	2.4	1974	2.4	1975	2.6	1976	2.6	1977	3.0	1978	2.3	1979	2.3	1980	2.3
1970	2.9	1971	2.9	1972	2.9	1973	2.4	1974	2.4	1975	2.5	1976	2.5	1977	2.9	1978	2.2	1979	2.3	1980	2.3	1981	3.1
1971	2.9	1972	2.9	1973	2.3	1974	2.3	1975	2.5	1976	2.5	1977	2.9	1978	2.2	1979	2.2	1980	2.2	1981	3.0	1982	3.0
1972	2.9	1973	2.3	1974	2.3	1975	2.5	1976	2.5	1977	2.9	1978	2.2	1979	2.1	1980	2.1	1981	2.9	1982	2.9	1983	2.9
1973	2.3	1974	2.3	1975	2.5	1976	2.5	1977	2.9	1978	2.2	1979	2.1	1980	2.1	1981	2.9	1982	2.9	1983	2.9	1984	2.2
1974	2.3	1975	2.4	1976	2.4	1977	2.8	1978	2.1	1979	2.0	1980	2.0	1981	2.8	1982	2.8	1983	2.8	1984	2.1	1985	1.4
1975	2.4	1976	2.4	1977	2.8	1978	2.1	1979	1.9	1980	1.9	1981	2.7	1982	2.7	1983	2.7	1984	2.1	1985	1.3	1986	1.3
1976	2.4	1977	2.8	1978	2.1	1979	1.8	1980	1.8	1981	2.6	1982	2.6	1983	2.6	1984	2.0	1985	1.2	1986	1.2	1987	1.2
1977	2.7	1978	2.0	1979	1.7	1980	1.7	1981	2.5	1982	2.5	1983	2.5	1984	1.9	1985	1.1	1986	1.1	1987	1.1	1988	1.1
1978	2.0	1979	1.6	1980	1.6	1981	2.4	1982	2.4	1983	2.4	1984	1.8	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0
1979	1.5	1980	1.5	1981	2.3	1982	2.3	1983	2.3	1984	1.7	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9
1980	1.4	1981	2.2	1982	2.2	1983	2.2	1984	1.6	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1981	2.0	1982	2.0	1983	2.0	1984	1.5	1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7	1992	0.7
1982	1.9	1983	1.9	1984	1.4	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6

*MY -- Indicates the model year.

**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.2.4A.

DATE: MARCH 31, 1981

TABLE 3.2.3

IDLE EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS 1

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1968	1.63	0.03
	1968-1969	0.76	0.06
	1970-1971	0.71	0.07
	1972-1974	0.74	0.04
	1975-1976	0.33	0.06
	1977	0.15	0.06
	1978	0.30	0.06
	1979-1980	0.06	0.02
	1981	0.10	0.02
	1982	0.07	0.02
	1983	0.07	0.02
	1984	0.04	0.01
	1985+	0.04	0.01
CO	Pre-1968	15.98	0.40
	1968-1969	11.24	0.63
	1970-1971	12.93	0.88
	1972-1974	13.99	0.76
	1975-1976	7.76	0.72
	1977	3.00	0.72
	1978	6.05	0.72
	1979-1980	1.52	0.32
	1981	2.27	0.27
	1982	1.72	0.24
	1983	1.72	0.24
	1984	0.69	0.14
	1985+	0.49	0.28
NOx	Pre-1968	0.11	0.0
	1968-1972	0.09	0.0
	1973-1974	0.07	0.0
	1975-1976	0.02	0.0
	1977	0.02	0.0
	1978	0.01	0.0
	1979-1980	0.01	0.0
	1981	0.06	0.0
	1982-1983	0.06	0.0
	1984	0.05	0.0
	1985+	0.02	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.2.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS 1

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per truck *	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.097	15600.	0.032	15600.	1950.
2	0.094	14000.	0.094	15200.	11650.
3	0.085	12500.	0.085	13625.	26053.
4	0.061	11200.	0.061	12175.	38934.
5	0.091	10100.	0.091	10925.	50466.
6	0.099	9400.	0.099	9925.	60853.
7	0.076	8600.	0.076	9200.	70425.
8	0.060	8000.	0.060	8450.	79231.
9	0.044	7500.	0.044	7875.	87384.
10	0.048	7000.	0.048	7375.	95009.
11	0.046	6600.	0.046	6900.	102137.
12	0.033	6200.	0.033	6500.	108837.
13	0.035	5900.	0.035	6125.	115140.
14	0.033	5500.	0.033	5800.	121112.
15	0.026	5200.	0.026	5425.	126715.
16	0.021	5000.	0.021	5150.	131993.
17	0.015	4700.	0.015	4925.	137040.
18	0.011	4400.	0.011	4625.	141815.
19	0.010	4400.	0.010	4400.	146299.
20+	0.013	4400.	0.013	4400.	150699.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 3.2.4B

FLEET SALES FRACTION* FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

Model Years	Sales Fraction
Pre-1978	1.000
1978	0.991
1979	0.972
1980	0.966
1981	0.953
1982	0.925
1983	0.911
1984	0.905
1985	0.886
1986	0.862
1987	0.835
1988	0.824
1989	0.813
1990	0.803
1991+	0.800

* The estimated fraction of the light duty truck model year fleet which is gasoline powered.

DATE: MARCH 31, 1981

TABLE 3.2.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS 1
JANUARY 1, 1985

Model Years	(A) LDT1 Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDGT1 Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.032	0.886	0.029	0.032	15600.	495.4	0.051
1984	0.094	0.905	0.086	0.095	15200.	1443.9	0.150
1983	0.085	0.911	0.078	0.087	13625.	1178.8	0.122
1982	0.061	0.925	0.057	0.063	12175.	766.8	0.079
1981	0.091	0.953	0.087	0.096	10925.	1051.2	0.109
1980	0.099	0.966	0.096	0.107	9925.	1057.5	0.110
1979	0.076	0.972	0.074	0.082	9200.	753.9	0.078
1978	0.060	0.991	0.059	0.066	8450.	557.2	0.058
1977	0.044	1.000	0.044	0.049	7875.	383.1	0.040
1976	0.048	1.000	0.048	0.054	7375.	394.8	0.041
1975	0.046	1.000	0.046	0.051	6900.	350.3	0.036
1974	0.033	1.000	0.033	0.037	6500.	239.7	0.025
1973	0.035	1.000	0.035	0.039	6125.	238.1	0.025
1972	0.033	1.000	0.033	0.037	5800.	212.6	0.022
1971	0.026	1.000	0.026	0.029	5425.	157.3	0.016
1970	0.021	1.000	0.021	0.024	5150.	122.4	0.013
1969	0.015	1.000	0.015	0.017	4925.	83.2	0.009
1968	0.011	1.000	0.011	0.013	4625.	58.6	0.006
1967	0.010	1.000	0.010	0.012	4400.	50.8	0.005
1966-	0.013	1.000	0.013	0.014	4400.	61.1	0.006
		DAF:	0.900		TFNORM:	9656.6	

WHERE:

A = January 1 registration mix from Table 3.2.4A.
B = Fleet sales fractions from Table 3.2.4B.
D = Sales weighted fleet mileage accumulation rate from Table 3.2.4A, adjusted to January 1.
D(1) = Annual Miles(1)
D(MY1) = .25*(Annual Miles(MY1)) + .75*(Annual Miles(MY1-1)) , MY1=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 3.2.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*S^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5, \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1968	0.224612E+01	-0.290973E+00	0.158890E-01	-0.472494E-03	0.694077E-05	-0.392798E-07
1968	0.202779E+01	-0.273049E+00	0.153577E-01	-0.460304E-03	0.678527E-05	-0.384880E-07
1969	0.215056E+01	-0.283620E+00	0.153836E-01	-0.442136E-03	0.628732E-05	-0.346311E-07
1970	0.223021E+01	-0.293648E+00	0.162356E-01	-0.484148E-03	0.711591E-05	-0.402861E-07
1971	0.212230E+01	-0.291072E+00	0.169089E-01	-0.526148E-03	0.802705E-05	-0.470117E-07
1972	0.215361E+01	-0.283451E+00	0.156948E-01	-0.469759E-03	0.693832E-05	-0.394707E-07
1973-1974	0.211340E+01	-0.285676E+00	0.163180E-01	-0.500793E-03	0.755067E-05	-0.437187E-07
1975+	0.239540E+01	-0.335781E+00	0.211609E-01	-0.731550E-03	0.120715E-04	-0.748566E-07
CO :						
PRE-1968	0.181978E+01	-0.254663E+00	0.152347E-01	-0.487397E-03	0.758207E-05	-0.449514E-07
1968	0.186919E+01	-0.276679E+00	0.172335E-01	-0.558279E-03	0.871678E-05	-0.516980E-07
1969	0.182133E+01	-0.272054E+00	0.170304E-01	-0.552021E-03	0.862543E-05	-0.511440E-07
1970	0.201421E+01	-0.295188E+00	0.186353E-01	-0.621606E-03	0.993657E-05	-0.599779E-07
1971	0.204533E+01	-0.310618E+00	0.204852E-01	-0.708527E-03	0.116215E-04	-0.715690E-07
1972	0.231868E+01	-0.341147E+00	0.209446E-01	-0.665891E-03	0.102225E-04	-0.598264E-07
1973-1974	0.215487E+01	-0.329116E+00	0.210112E-01	-0.689057E-03	0.108390E-04	-0.647125E-07
1975+	0.248747E+01	-0.391562E+00	0.270721E-01	-0.976178E-03	0.165270E-04	-0.104317E-06
NOx:						
PRE-1968	0.244424E+01	-0.250107E+00	0.138293E-01	-0.287025E-03	0.207585E-05	0.0
1968	0.188656E+01	-0.161289E+00	0.904995E-02	-0.185609E-03	0.132555E-05	0.0
1969	0.155777E+01	-0.113032E+00	0.671832E-02	-0.143409E-03	0.106079E-05	0.0
1970	0.204516E+01	-0.194014E+00	0.110736E-01	-0.231754E-03	0.168372E-05	0.0
1971	0.163262E+01	-0.121861E+00	0.703020E-02	-0.146293E-03	0.106141E-05	0.0
1972	0.144825E+01	-0.122444E+00	0.795024E-02	-0.171078E-03	0.125777E-05	0.0
1973-1974	0.153447E+01	-0.125671E+00	0.785919E-02	-0.169428E-03	0.125494E-05	0.0
1975+	0.942131E+00	-0.423240E-01	0.386253E-02	-0.939853E-04	0.753883E-06	0.0

Where:
- s = average speed (mph)
- sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w. [1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 3.2.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1968	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1968-1969	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1970-1971	-0.21255E-01	-0.10888E-01	-0.52755E-03	-0.47925E-03	0.93659E-03	0.76666E-02
	1972-1974	-0.21427E-01	-0.66107E-02	-0.39442E-03	0.26288E-02	0.49731E-02	0.12320E-01
	1975-1980	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1981-1984	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1985+	-0.25217E-01	0.11959E-01	-0.56153E-02	-0.12627E-04	-0.36228E-02	0.78765E-02
CO	Pre-1968	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1968-1969	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1970-1971	-0.20843E-01	-0.21165E-01	-0.59951E-02	0.23603E-01	0.18253E-02	0.28483E-01
	1972-1974	-0.19091E-01	-0.13146E-01	-0.42373E-03	0.24717E-01	0.57982E-02	0.25848E-01
	1975-1980	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1981-1984	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1985+	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
NOx	Pre-1968	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1968-1972	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01
	1973-1974	0.38855E-02	-0.18301E-01	-0.24156E-02	-0.10925E-01	-0.21188E-02	-0.18042E-01
	1975-1978	-0.45504E-04	-0.71420E-02	-0.12575E-02	-0.87910E-02	-0.53153E-03	-0.75470E-02
	1979-1980	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1981-1984	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1985+	0.15668E-02	-0.34416E-01	0.59496E-03	-0.35871E-01	-0.24888E-02	-0.28830E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 3.2.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

DATE: MARCH 31, 1981

TABLE 3.2.7B

NORMALIZED BAG FRACTIONS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1968	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1968-1969	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1970-1971	1.345	0.178	0.919	0.118	0.894	0.093	1.000	0.124
	1972-1974	1.398	0.060	0.885	0.055	0.919	0.036	1.000	0.051
	1975-1980	2.092	0.248	0.649	0.254	0.846	0.152	1.000	0.225
	1981-1984	2.092	1.339	0.649	1.014	0.846	0.717	1.000	1.000
	1985+	2.961	0.164	0.407	0.598	0.652	0.566	1.000	0.500
CO	Pre-1968	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1968-1969	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1970-1971	1.553	0.109	0.933	0.079	0.711	0.038	1.000	0.074
	1972-1974	1.573	0.054	0.902	0.079	0.755	0.029	1.000	0.060
	1975-1980	2.413	0.143	0.608	0.180	0.681	0.068	1.000	0.142
	1981-1984	2.413	0.657	0.608	0.503	0.681	0.251	1.000	0.466
	1985+	3.184	0.551	0.345	0.589	0.601	0.479	1.000	0.551
NOx	Pre-1968	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1968-1972	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0
	1973-1974	1.262	0.022	0.770	0.004	1.242	0.027	1.000	0.014
	1975-1978	1.311	0.021	0.774	0.010	1.198	0.026	1.000	0.017
	1979-1980	1.393	0.050	0.754	0.052	1.172	0.079	1.000	0.059
	1981-1984	1.393	0.056	0.754	0.056	1.172	0.085	1.000	0.064
	1985+	1.801	0.169	0.653	0.141	1.059	0.296	1.000	0.189

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.2.8A

AIR CONDITIONING CORRECTION FACTORS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

* ACCF= U*V*(A + B*(T-75) -1) + 1

Model Years	HC		CO		NOx	
	A	B	A	B	A	B
Pre-1975	0.1023E+01	0.3344E-02	0.1202E+01	0.1808E-02	0.1299E+01	0.5643E-04
1975+	0.1000E+01	0.3512E-02	0.1130E+01	0.1528E-02	0.1221E+01	0.4262E-03

*WHERE:

ACCF = Air Conditioning Correction Factor
V = Fraction of vehicles which are equipped with AC given in Table 3.2.8B
U = Fraction of vehicles with AC that are using it = (DI-DILO)/(DIHI-DI), 0<=U<=1
DI = Discomfort index = (DB+WB)*.4+15
DILO = The highest discomfort index where no AC is used
DIHI = The lowest discomfort index where all vehicles with AC use it
DB = Dry bulb temperature (Fahrenheit)
WB = Wet bulb temperature (Fahrenheit)
T = Ambient temperature (Fahrenheit)

TABLE 3.2.8B

ESTIMATED FRACTION OF
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I
EQUIPPED WITH AIR CONDITIONING

Model Years	Fraction Equipped With Air Conditioning
Pre-1977	0.32
1977	0.52
1978+	0.39

DATE: MARCH 31, 1981

TABLE 3.2.9

EXTRA LOAD CORRECTION FACTORS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

* XLCF = (XLC-1)*U + 1

Model Years	Coefficients (XLC) HC	CO	NOx
Pre-1968	1.0786	1.2765	0.9535
1968-1969	1.0495	1.1384	1.0313
1970-1971	1.0852	1.2478	1.0313
1972	1.0556	1.1347	1.0313
1973-1974	1.0556	1.1347	1.0753
1975+	1.0455	1.3058	1.0719

* WHERE:
XLCF = Extra load correction factor
U = Fraction of VMT with an extra load
XLC = Correction factor coefficient

TABLE 3.2.10

TRAILER TOWING CORRECTION FACTORS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS I

* TTCF = (TTC-1)*U + 1

Model Years	Coefficients (TTC) HC	CO	NOx
Pre-1968	1.2614	1.9327	1.1184
1968-1969	1.2762	1.8940	1.1384
1970-1971	1.4598	2.4753	1.1384
1972	1.7288	2.1414	1.1384
1973-1974	1.7288	2.1414	1.2170
1975+	1.5909	3.9722	1.3875

* WHERE:
TTCF = Trailer towing correction factor
U = Fraction of VMT towing a trailer
TTC = Correction factor coefficient

DATE: MARCH 31, 1981

TABLE 3.3.1A

EXHAUST EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1970	12.35	0.18	13.25
	1970-1973	8.26	0.25	9.51
	1974-1978	8.26	0.17	9.11
	1979-1980	1.61	0.29	3.06
	1981	1.47	0.26	2.77
	1982	1.04	0.26	2.34
	1983	1.04	0.26	2.34
	1984	0.58	0.14	1.28
	1985+	0.48	0.14	1.18
CO	Pre-1970	141.35	2.25	152.60
	1970-1973	105.90	2.55	118.65
	1974-1978	105.90	2.44	118.10
	1979-1980	27.20	2.86	41.50
	1981	20.50	2.43	32.65
	1982	16.52	2.35	28.27
	1983	16.52	2.35	28.27
	1984	6.14	1.35	12.89
	1985+	4.38	2.45	16.63
NOx	Pre-1970	3.10	0.0	3.10
	1970-1973	4.32	0.0	4.32
	1974-1978	3.07	0.04	3.27
	1979-1980	1.12	0.10	1.62
	1981	1.91	0.10	2.41
	1982-1983	1.90	0.10	2.40
	1984	1.42	0.08	1.82
	1985+	0.59	0.09	1.04

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See sections A.1.2 and A.1.3 of Appendix A for the emission standards.

DATE: MARCH 31, 1981

TABLE 3.3.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1968	16.51	3.05	41.47	33.70	7.35	10.07
1968-1978	16.51	3.05	41.47	33.70	0.0	2.72
1979-1980	2.03	3.05	3.45	33.70	0.0	0.29
1981+	0.82	3.05	1.39	33.70	0.0	0.12

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 3.3.2A

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	15.1	1952	15.1	1953	15.1	1954	15.1	1955	15.1	1956	15.1	1957	15.1	1958	15.1	1959	15.1	1960	15.1	1961	15.1	1962	15.1
1952	15.0	1953	15.0	1954	15.0	1955	15.0	1956	15.0	1957	15.0	1958	15.0	1959	15.0	1960	15.0	1961	15.0	1962	15.0	1963	15.0
1953	14.9	1954	14.9	1955	14.9	1956	14.9	1957	14.9	1958	14.9	1959	14.9	1960	14.9	1961	14.9	1962	14.9	1963	14.9	1964	14.9
1954	14.8	1955	14.8	1956	14.8	1957	14.8	1958	14.8	1959	14.8	1960	14.8	1961	14.8	1962	14.8	1963	14.8	1964	14.8	1965	14.8
1955	14.8	1956	14.8	1957	14.8	1958	14.8	1959	14.8	1960	14.8	1961	14.8	1962	14.8	1963	14.8	1964	14.8	1965	14.8	1966	14.8
1956	14.7	1957	14.7	1958	14.7	1959	14.7	1960	14.7	1961	14.7	1962	14.7	1963	14.7	1964	14.7	1965	14.7	1966	14.7	1967	14.7
1957	14.6	1958	14.6	1959	14.6	1960	14.6	1961	14.6	1962	14.6	1963	14.6	1964	14.6	1965	14.6	1966	14.6	1967	14.6	1968	14.6
1958	14.4	1959	14.4	1960	14.4	1961	14.4	1962	14.4	1963	14.4	1964	14.4	1965	14.4	1966	14.4	1967	14.4	1968	14.4	1969	14.4
1959	14.3	1960	14.3	1961	14.3	1962	14.3	1963	14.3	1964	14.3	1965	14.3	1966	14.3	1967	14.3	1968	14.3	1969	14.3	1970	11.0
1960	14.2	1961	14.2	1962	14.2	1963	14.2	1964	14.2	1965	14.2	1966	14.2	1967	14.2	1968	14.2	1969	14.2	1970	10.8	1971	10.8
1961	14.1	1962	14.1	1963	14.1	1964	14.1	1965	14.1	1966	14.1	1967	14.1	1968	14.1	1969	14.1	1970	10.7	1971	10.7	1972	10.7
1962	13.9	1963	13.9	1964	13.9	1965	13.9	1966	13.9	1967	13.9	1968	13.9	1969	13.9	1970	10.5	1971	10.5	1972	10.5	1973	10.5
1963	13.8	1964	13.8	1965	13.8	1966	13.8	1967	13.8	1968	13.8	1969	13.8	1970	10.3	1971	10.3	1972	10.3	1973	10.3	1974	9.6
1964	13.6	1965	13.6	1966	13.6	1967	13.6	1968	13.6	1969	13.6	1970	10.0	1971	10.0	1972	10.0	1973	10.0	1974	9.5	1975	9.5
1965	13.5	1966	13.5	1967	13.5	1968	13.5	1969	13.5	1970	9.8	1971	9.8	1972	9.8	1973	9.8	1974	9.3	1975	9.3	1976	9.3
1966	13.3	1967	13.3	1968	13.3	1969	13.3	1970	9.5	1971	9.5	1972	9.5	1973	9.5	1974	9.1	1975	9.1	1976	9.1	1977	9.1
1967	13.1	1968	13.1	1969	13.1	1970	9.2	1971	9.2	1972	9.2	1973	9.2	1974	8.9	1975	8.9	1976	8.9	1977	8.9	1978	8.9
1968	12.8	1969	12.8	1970	8.9	1971	8.9	1972	8.9	1973	8.9	1974	8.7	1975	8.7	1976	8.7	1977	8.7	1978	8.7	1979	2.4
1969	12.6	1970	8.6	1971	8.6	1972	8.6	1973	8.6	1974	8.5	1975	8.5	1976	8.5	1977	8.5	1978	8.5	1979	2.0	1980	2.0
1970	8.3	1971	8.3	1972	8.3	1973	8.3	1974	8.3	1975	8.3	1976	8.3	1977	8.3	1978	8.3	1979	1.7	1980	1.7	1981	1.5

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	15.1	1964	15.1	1965	15.1	1966	15.1	1967	15.1	1968	15.1	1969	15.1	1970	12.1	1971	12.1	1972	12.1	1973	12.1	1974	10.9
1964	15.0	1965	15.0	1966	15.0	1967	15.0	1968	15.0	1969	15.0	1970	12.0	1971	12.0	1972	12.0	1973	12.0	1974	10.8	1975	10.8
1965	14.9	1966	14.9	1967	14.9	1968	14.9	1969	14.9	1970	11.8	1971	11.8	1972	11.8	1973	11.8	1974	10.7	1975	10.7	1976	10.7
1966	14.8	1967	14.8	1968	14.8	1969	14.8	1970	11.7	1971	11.7	1972	11.7	1973	11.7	1974	10.6	1975	10.6	1976	10.6	1977	10.6
1967	14.8	1968	14.8	1969	14.8	1970	11.6	1971	11.6	1972	11.6	1973	11.6	1974	10.5	1975	10.5	1976	10.5	1977	10.5	1978	10.5
1968	14.7	1969	14.7	1970	11.5	1971	11.5	1972	11.5	1973	11.5	1974	10.4	1975	10.4	1976	10.4	1977	10.4	1978	10.4	1979	5.3
1969	14.6	1970	11.3	1971	11.3	1972	11.3	1973	11.3	1974	10.3	1975	10.3	1976	10.3	1977	10.3	1978	10.3	1979	5.2	1980	5.2
1970	11.2	1971	11.2	1972	11.2	1973	11.2	1974	10.2	1975	10.2	1976	10.2	1977	10.2	1978	10.2	1979	5.0	1980	5.0	1981	4.5
1971	11.0	1972	11.0	1973	11.0	1974	10.1	1975	10.1	1976	10.1	1977	10.1	1978	10.1	1979	4.8	1980	4.8	1981	4.3	1982	3.9
1972	10.8	1973	10.8	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	10.0	1979	4.6	1980	4.6	1981	4.2	1982	3.7	1983	3.7
1973	10.7	1974	9.9	1975	9.9	1976	9.9	1977	9.9	1978	9.9	1979	4.4	1980	4.4	1981	4.0	1982	3.5	1983	3.5	1984	1.9
1974	9.8	1975	9.8	1976	9.8	1977	9.8	1978	9.8	1979	4.2	1980	4.2	1981	3.8	1982	3.3	1983	3.3	1984	1.8	1985	1.7
1975	9.6	1976	9.6	1977	9.6	1978	9.6	1979	3.9	1980	3.9	1981	3.6	1982	3.1	1983	3.1	1984	1.7	1985	1.6	1986	1.6
1976	9.5	1977	9.5	1978	9.5	1979	3.7	1980	3.7	1981	3.3	1982	2.9	1983	2.9	1984	1.6	1985	1.5	1986	1.5	1987	1.5
1977	9.3	1978	9.3	1979	3.4	1980	3.4	1981	3.1	1982	2.6	1983	2.6	1984	1.4	1985	1.3	1986	1.3	1987	1.3	1988	1.3
1978	9.1	1979	3.1	1980	3.1	1981	2.8	1982	2.4	1983	2.4	1984	1.3	1985	1.2	1986	1.2	1987	1.2	1988	1.2	1989	1.2
1979	2.8	1980	2.8	1981	2.5	1982	2.1	1983	2.1	1984	1.1	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0	1990	1.0
1980	2.4	1981	2.2	1982	1.7	1983	1.7	1984	0.9	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1981	1.8	1982	1.3	1983	1.3	1984	0.7	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6
1982	1.1	1983	1.1	1984	0.6	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5	1992	0.5	1993	0.5

*MY -- Indicates the model year.

**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.3.4A.

DATE: MARCH 31, 1981

TABLE 3.3.2B

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	175.6	1952	175.6	1953	175.6	1954	175.6	1955	175.6	1956	175.6	1957	175.6	1958	175.6	1959	175.6	1960	175.6	1961	175.6	1962	175.6
1952	174.6	1953	174.6	1954	174.6	1955	174.6	1956	174.6	1957	174.6	1958	174.6	1959	174.6	1960	174.6	1961	174.6	1962	174.6	1963	174.6
1953	173.6	1954	173.6	1955	173.6	1956	173.6	1957	173.6	1958	173.6	1959	173.6	1960	173.6	1961	173.6	1962	173.6	1963	173.6	1964	173.6
1954	172.6	1955	172.6	1956	172.6	1957	172.6	1958	172.6	1959	172.6	1960	172.6	1961	172.6	1962	172.6	1963	172.6	1964	172.6	1965	172.6
1955	171.4	1956	171.4	1957	171.4	1958	171.4	1959	171.4	1960	171.4	1961	171.4	1962	171.4	1963	171.4	1964	171.4	1965	171.4	1966	171.4
1956	170.2	1957	170.2	1958	170.2	1959	170.2	1960	170.2	1961	170.2	1962	170.2	1963	170.2	1964	170.2	1965	170.2	1966	170.2	1967	170.2
1957	169.0	1958	169.0	1959	169.0	1960	169.0	1961	169.0	1962	169.0	1963	169.0	1964	169.0	1965	169.0	1966	169.0	1967	169.0	1968	169.0
1958	167.6	1959	167.6	1960	167.6	1961	167.6	1962	167.6	1963	167.6	1964	167.6	1965	167.6	1966	167.6	1967	167.6	1968	167.6	1969	167.6
1959	166.2	1960	166.2	1961	166.2	1962	166.2	1963	166.2	1964	166.2	1965	166.2	1966	166.2	1967	166.2	1968	166.2	1969	166.2	1970	134.0
1960	164.6	1961	164.6	1962	164.6	1963	164.6	1964	164.6	1965	164.6	1966	164.6	1967	164.6	1968	164.6	1969	164.6	1970	132.3	1971	132.3
1961	163.0	1962	163.0	1963	163.0	1964	163.0	1965	163.0	1966	163.0	1967	163.0	1968	163.0	1969	163.0	1970	130.5	1971	130.5	1972	130.5
1962	161.3	1963	161.3	1964	161.3	1965	161.3	1966	161.3	1967	161.3	1968	161.3	1969	161.3	1970	128.5	1971	128.5	1972	128.5	1973	128.5
1963	159.4	1964	159.4	1965	159.4	1966	159.4	1967	159.4	1968	159.4	1969	159.4	1970	126.4	1971	126.4	1972	126.4	1973	126.4	1974	125.5
1964	157.4	1965	157.4	1966	157.4	1967	157.4	1968	157.4	1969	157.4	1970	124.1	1971	124.1	1972	124.1	1973	124.1	1974	123.3	1975	123.3
1965	155.2	1966	155.2	1967	155.2	1968	155.2	1969	155.2	1970	121.6	1971	121.6	1972	121.6	1973	121.6	1974	121.0	1975	121.0	1976	121.0
1966	152.9	1967	152.9	1968	152.9	1969	152.9	1970	118.9	1971	118.9	1972	118.9	1973	118.9	1974	118.4	1975	118.4	1976	118.4	1977	118.4
1967	150.2	1968	150.2	1969	150.2	1970	116.0	1971	116.0	1972	116.0	1973	116.0	1974	115.5	1975	115.5	1976	115.5	1977	115.5	1978	115.5
1968	147.3	1969	147.3	1970	112.6	1971	112.6	1972	112.6	1973	112.6	1974	112.3	1975	112.3	1976	112.3	1977	112.3	1978	112.3	1979	34.8
1969	144.0	1970	108.9	1971	108.9	1972	108.9	1973	108.9	1974	108.8	1975	108.8	1976	108.8	1977	108.8	1978	108.8	1979	30.6	1980	30.6
1970	106.4	1971	106.4	1972	106.4	1973	106.4	1974	106.4	1975	106.4	1976	106.4	1977	106.4	1978	106.4	1979	27.8	1980	27.8	1981	21.0

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	175.6	1964	175.6	1965	175.6	1966	175.6	1967	175.6	1968	175.6	1969	175.6	1970	144.8	1971	144.8	1972	144.8	1973	144.8	1974	143.1
1964	174.6	1965	174.6	1966	174.6	1967	174.6	1968	174.6	1969	174.6	1970	143.6	1971	143.6	1972	143.6	1973	143.6	1974	142.0	1975	142.0
1965	173.6	1966	173.6	1967	173.6	1968	173.6	1969	173.6	1970	142.5	1971	142.5	1972	142.5	1973	142.5	1974	140.9	1975	140.9	1976	140.9
1966	172.6	1967	172.6	1968	172.6	1969	172.6	1970	141.3	1971	141.3	1972	141.3	1973	141.3	1974	139.7	1975	139.7	1976	139.7	1977	139.7
1967	171.4	1968	171.4	1969	171.4	1970	140.0	1971	140.0	1972	140.0	1973	140.0	1974	138.5	1975	138.5	1976	138.5	1977	138.5	1978	138.5
1968	170.2	1969	170.2	1970	138.6	1971	138.6	1972	138.6	1973	138.6	1974	137.2	1975	137.2	1976	137.2	1977	137.2	1978	137.2	1979	63.9
1969	169.0	1970	137.2	1971	137.2	1972	137.2	1973	137.2	1974	135.8	1975	135.8	1976	135.8	1977	135.8	1978	135.8	1979	62.3	1980	62.3
1970	135.6	1971	135.6	1972	135.6	1973	135.6	1974	134.4	1975	134.4	1976	134.4	1977	134.4	1978	134.4	1979	60.6	1980	60.6	1981	48.8
1971	134.0	1972	134.0	1973	134.0	1974	132.8	1975	132.8	1976	132.8	1977	132.8	1978	132.8	1979	58.7	1980	58.7	1981	47.3	1982	42.4
1972	132.3	1973	132.3	1974	131.2	1975	131.2	1976	131.2	1977	131.2	1978	131.2	1979	56.8	1980	56.8	1981	45.7	1982	40.8	1983	40.8
1973	130.5	1974	129.4	1975	129.4	1976	129.4	1977	129.4	1978	129.4	1979	54.7	1980	54.7	1981	43.9	1982	39.1	1983	39.1	1984	19.1
1974	127.5	1975	127.5	1976	127.5	1977	127.5	1978	127.5	1979	52.5	1980	52.5	1981	42.0	1982	37.3	1983	37.3	1984	18.1	1985	26.1
1975	125.5	1976	125.5	1977	125.5	1978	125.5	1979	50.2	1980	50.2	1981	40.0	1982	35.4	1983	35.4	1984	17.0	1985	24.1	1986	24.1
1976	123.3	1977	123.3	1978	123.3	1979	47.6	1980	47.6	1981	37.9	1982	33.3	1983	33.3	1984	15.8	1985	21.9	1986	21.9	1987	21.9
1977	121.0	1978	121.0	1979	44.8	1980	44.8	1981	35.5	1982	31.0	1983	31.0	1984	14.5	1985	19.5	1986	19.5	1987	19.5	1988	19.5
1978	118.4	1979	41.8	1980	41.8	1981	32.9	1982	28.5	1983	28.5	1984	13.0	1985	16.9	1986	16.9	1987	16.9	1988	16.9	1989	16.9
1979	38.5	1980	38.5	1981	30.1	1982	25.8	1983	25.8	1984	11.5	1985	14.0	1986	14.0	1987	14.0	1988	14.0	1989	14.0	1990	14.0
1980	34.8	1981	26.9	1982	22.7	1983	22.7	1984	9.7	1985	10.8	1986	10.8	1987	10.8	1988	10.8	1989	10.8	1990	10.8	1991	10.8
1981	23.4	1982	19.3	1983	19.3	1984	7.7	1985	7.3	1986	7.3	1987	7.3	1988	7.3	1989	7.3	1990	7.3	1991	7.3	1992	7.3
1982	17.0	1983	17.0	1984	6.4	1985	4.9	1986	4.9	1987	4.9	1988	4.9	1989	4.9	1990	4.9	1991	4.9	1992	4.9	1993	4.9

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.3.4A.

DATE: MARCH 31, 1981

TABLE 3.3.2C

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	3.1	1952	3.1	1953	3.1	1954	3.1	1955	3.1	1956	3.1	1957	3.1	1958	3.1	1959	3.1	1960	3.1	1961	3.1	1962	3.1
1952	3.1	1953	3.1	1954	3.1	1955	3.1	1956	3.1	1957	3.1	1958	3.1	1959	3.1	1960	3.1	1961	3.1	1962	3.1	1963	3.1
1953	3.1	1954	3.1	1955	3.1	1956	3.1	1957	3.1	1958	3.1	1959	3.1	1960	3.1	1961	3.1	1962	3.1	1963	3.1	1964	3.1
1954	3.1	1955	3.1	1956	3.1	1957	3.1	1958	3.1	1959	3.1	1960	3.1	1961	3.1	1962	3.1	1963	3.1	1964	3.1	1965	3.1
1955	3.1	1956	3.1	1957	3.1	1958	3.1	1959	3.1	1960	3.1	1961	3.1	1962	3.1	1963	3.1	1964	3.1	1965	3.1	1966	3.1
1956	3.1	1957	3.1	1958	3.1	1959	3.1	1960	3.1	1961	3.1	1962	3.1	1963	3.1	1964	3.1	1965	3.1	1966	3.1	1967	3.1
1957	3.1	1958	3.1	1959	3.1	1960	3.1	1961	3.1	1962	3.1	1963	3.1	1964	3.1	1965	3.1	1966	3.1	1967	3.1	1968	3.1
1958	3.1	1959	3.1	1960	3.1	1961	3.1	1962	3.1	1963	3.1	1964	3.1	1965	3.1	1966	3.1	1967	3.1	1968	3.1	1969	3.1
1959	3.1	1960	3.1	1961	3.1	1962	3.1	1963	3.1	1964	3.1	1965	3.1	1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3
1960	3.1	1961	3.1	1962	3.1	1963	3.1	1964	3.1	1965	3.1	1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3
1961	3.1	1962	3.1	1963	3.1	1964	3.1	1965	3.1	1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3
1962	3.1	1963	3.1	1964	3.1	1965	3.1	1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3
1963	3.1	1964	3.1	1965	3.1	1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.4
1964	3.1	1965	3.1	1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.4	1975	3.4
1965	3.1	1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.3	1975	3.3	1976	3.3
1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.3	1975	3.3	1976	3.3	1977	3.3
1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.2	1975	3.2	1976	3.2	1977	3.2	1978	3.2
1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.2	1975	3.2	1976	3.2	1977	3.2	1978	3.2	1979	1.4
1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.1	1975	3.1	1976	3.1	1977	3.1	1978	3.1	1979	1.2	1980	1.2
1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.1	1975	3.1	1976	3.1	1977	3.1	1978	3.1	1979	1.1	1980	1.1	1981	1.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	3.1	1964	3.1	1965	3.1	1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.7
1964	3.1	1965	3.1	1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.7	1975	3.7
1965	3.1	1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.6	1975	3.6	1976	3.6
1966	3.1	1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.6	1975	3.6	1976	3.6	1977	3.6
1967	3.1	1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.6	1975	3.6	1976	3.6	1977	3.6	1978	3.6
1968	3.1	1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.6	1975	3.6	1976	3.6	1977	3.6	1978	3.6	1979	2.4
1969	3.1	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.6	1975	3.6	1976	3.6	1977	3.6	1978	3.6	1979	2.3	1980	2.3
1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	3.5	1975	3.5	1976	3.5	1977	3.5	1978	3.5	1979	2.3	1980	2.3	1981	3.1
1971	4.3	1972	4.3	1973	4.3	1974	3.5	1975	3.5	1976	3.5	1977	3.5	1978	3.5	1979	2.2	1980	2.2	1981	3.0	1982	3.0
1972	4.3	1973	4.3	1974	3.5	1975	3.5	1976	3.5	1977	3.5	1978	3.5	1979	2.2	1980	2.2	1981	2.9	1982	2.9	1983	2.9
1973	4.3	1974	3.5	1975	3.5	1976	3.5	1977	3.5	1978	3.5	1979	2.1	1980	2.1	1981	2.9	1982	2.9	1983	2.9	1984	2.2
1974	3.4	1975	3.4	1976	3.4	1977	3.4	1978	3.4	1979	2.0	1980	2.0	1981	2.8	1982	2.8	1983	2.8	1984	2.1	1985	1.4
1975	3.4	1976	3.4	1977	3.4	1978	3.4	1979	1.9	1980	1.9	1981	2.7	1982	2.7	1983	2.7	1984	2.1	1985	1.3	1986	1.3
1976	3.4	1977	3.4	1978	3.4	1979	1.8	1980	1.8	1981	2.6	1982	2.6	1983	2.6	1984	2.0	1985	1.2	1986	1.2	1987	1.2
1977	3.3	1978	3.3	1979	1.7	1980	1.7	1981	2.5	1982	2.5	1983	2.5	1984	1.9	1985	1.1	1986	1.1	1987	1.1	1988	1.1
1978	3.3	1979	1.6	1980	1.6	1981	2.4	1982	2.4	1983	2.4	1984	1.8	1985	1.1	1986	1.1	1987	1.1	1988	1.1	1989	1.1
1979	1.5	1980	1.5	1981	2.3	1982	2.3	1983	2.3	1984	1.7	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9
1980	1.4	1981	2.2	1982	2.2	1983	2.2	1984	1.6	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1981	2.0	1982	2.0	1983	2.0	1984	1.5	1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7	1992	0.7
1982	1.9	1983	1.9	1984	1.4	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6

*MY -- Indicates the model year.

**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.3.4A.

DATE: MARCH 31, 1981

TABLE 3.3.3

IDLE EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1970	2.06	0.03
	1970-1973	1.09	0.04
	1974-1978	1.09	0.03
	1979-1980	0.06	0.02
	1981	0.10	0.02
	1982	0.07	0.02
	1983	0.07	0.02
	1984	0.04	0.01
	1985+	0.04	0.01
CO	Pre-1970	22.04	0.45
	1970-1973	12.74	0.52
	1974-1978	12.74	0.49
	1979-1980	1.52	0.32
	1981	2.27	0.27
	1982	1.72	0.24
	1983	1.72	0.24
	1984	0.69	0.14
	1985+	0.49	0.28
NOx	Pre-1970	0.10	0.0
	1970-1973	0.05	0.0
	1974-1978	0.04	0.0
	1979-1980	0.01	0.0
	1981	0.06	0.0
	1982-1983	0.06	0.0
	1984	0.05	0.0
	1985+	0.02	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.3.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per truck *	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.245	15800.	0.082	15800.	1975.
2	0.207	14200.	0.207	15400.	11800.
3	0.155	12600.	0.155	13800.	26400.
4	0.097	11400.	0.097	12300.	39412.
5	0.057	10300.	0.057	11125.	51116.
6	0.056	9500.	0.056	10100.	61700.
7	0.039	8700.	0.039	9300.	71400.
8	0.030	8100.	0.030	8550.	80306.
9	0.023	7600.	0.023	7975.	88559.
10	0.020	7100.	0.020	7475.	96284.
11	0.017	6600.	0.017	6975.	103509.
12	0.011	6300.	0.011	6525.	110240.
13	0.010	6000.	0.010	6225.	116615.
14	0.008	5500.	0.008	5875.	122684.
15	0.005	5200.	0.005	5425.	128315.
16	0.006	5100.	0.006	5175.	133596.
17	0.004	4700.	0.004	5000.	138712.
18	0.003	4400.	0.003	4625.	143515.
19	0.003	4400.	0.003	4400.	147999.
20+	0.004	4400.	0.004	4400.	152399.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 3.3.4B

FLEET SALES FRACTION* FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

Model Years	Sales Fraction
Pre-1978	1.000
1978	0.991
1979	0.972
1980	0.966
1981	0.953
1982	0.925
1983	0.911
1984	0.905
1985	0.886
1986	0.862
1987	0.835
1988	0.824
1989	0.813
1990	0.803
1991+	0.800

* The estimated fraction of the light duty truck model year fleet which is gasoline powered.

DATE: MARCH 31, 1981

TABLE 3.3.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II
JANUARY 1, 1985

Model Years	(A) LDT2 Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDGT2 Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.082	0.886	0.072	0.093	15800.	1463.0	0.119
1984	0.207	0.905	0.187	0.240	15400.	3695.0	0.301
1983	0.155	0.911	0.141	0.181	13800.	2500.6	0.203
1982	0.097	0.925	0.090	0.115	12300.	1413.5	0.115
1981	0.057	0.953	0.055	0.070	11125.	776.7	0.063
1980	0.056	0.966	0.054	0.069	10100.	699.8	0.057
1979	0.039	0.972	0.038	0.049	9300.	452.7	0.037
1978	0.030	0.991	0.029	0.038	8550.	321.2	0.026
1977	0.023	1.000	0.023	0.030	7975.	235.9	0.019
1976	0.020	1.000	0.020	0.026	7475.	192.4	0.016
1975	0.017	1.000	0.017	0.022	6975.	154.5	0.013
1974	0.011	1.000	0.011	0.014	6525.	93.6	0.008
1973	0.010	1.000	0.010	0.012	6225.	77.3	0.006
1972	0.008	1.000	0.008	0.010	5875.	60.2	0.005
1971	0.005	1.000	0.005	0.007	5425.	37.5	0.003
1970	0.006	1.000	0.006	0.007	5175.	36.5	0.003
1969	0.004	1.000	0.004	0.006	5000.	28.8	0.002
1968	0.003	1.000	0.003	0.004	4625.	16.6	0.001
1967	0.003	1.000	0.003	0.003	4400.	14.7	0.001
1966-	0.004	1.000	0.004	0.005	4400.	21.4	0.002
		DAF:	0.781		TFNORM:	12291.9	

WHERE:

A = January 1 registration mix from Table 3.3.4A.
B = Fleet sales fractions from Table 3.3.4B.
D = Sales weighted fleet mileage accumulation rate from Table 3.3.4A, adjusted to January 1.
D(1) = Annual Miles(1)
D(MYI) = .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 3.3.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5, \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1970	0.224612E+01	-0.290973E+00	0.158890E-01	-0.472494E-03	0.694077E-05	-0.392798E-07
1970-1973	0.215361E+01	-0.283451E+00	0.156948E-01	-0.469759E-03	0.693832E-05	-0.394707E-07
1974-1978	0.211340E+01	-0.285676E+00	0.163180E-01	-0.500783E-03	0.755067E-05	-0.437187E-07
1979+	0.289540E+01	-0.335781E+00	0.211609E-01	-0.731550E-03	0.120715E-04	-0.748566E-07
CO :						
PRE-1970	0.181978E+01	-0.254663E+00	0.152347E-01	-0.487397E-03	0.758207E-05	-0.449514E-07
1970-1973	0.231868E+01	-0.341147E+00	0.209446E-01	-0.665891E-03	0.102225E-04	-0.598264E-07
1974-1978	0.215487E+01	-0.329116E+00	0.210112E-01	-0.689057E-03	0.108390E-04	-0.647125E-07
1979+	0.248747E+01	-0.391562E+00	0.270721E-01	-0.976178E-03	0.165270E-04	-0.104317E-06
NOx:						
PRE-1970	0.244424E+01	-0.250107E+00	0.138293E-01	-0.287025E-03	0.207585E-05	0.0
1970-1973	0.144825E+01	-0.122444E+00	0.795024E-02	-0.171078E-03	0.125777E-05	0.0
1974-1978	0.153447E+01	-0.125671E+00	0.785919E-02	-0.169428E-03	0.125494E-05	0.0
1979+	0.942131E+00	-0.423240E-01	0.386253E-02	-0.939853E-04	0.753883E-06	0.0

Where:
s = average speed (mph)
sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w.
[1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 3.3.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1970	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1970-1973	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1974-1978	-0.21427E-01	-0.66107E-02	-0.39442E-03	0.26288E-02	0.49731E-02	0.12320E-01
	1979-1980	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1981-1984	-0.23517E-01	-0.14095E-01	-0.88057E-02	0.26179E-01	-0.16222E-02	0.24297E-01
	1985+	-0.25217E-01	0.11959E-01	-0.56153E-02	-0.12627E-04	-0.36228E-02	0.78765E-02
CO	Pre-1970	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1970-1973	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1974-1978	-0.19091E-01	-0.13146E-01	-0.42373E-03	0.24717E-01	0.57982E-02	0.25848E-01
	1979-1980	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1981-1984	-0.24835E-01	-0.19612E-01	-0.88336E-02	0.48537E-01	-0.11553E-02	0.31439E-01
	1985+	-0.18263E-01	-0.12596E-01	-0.14042E-01	0.13861E-01	-0.24813E-02	0.96939E-02
NOx	Pre-1970	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1970-1973	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01
	1974-1978	0.38855E-02	-0.18301E-01	-0.24156E-02	-0.10925E-01	-0.21188E-02	-0.18042E-01
	1979-1980	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1981-1984	-0.76044E-02	-0.26153E-01	-0.68045E-02	-0.18603E-01	-0.54198E-02	-0.20878E-01
	1985+	0.15668E-02	-0.34416E-01	0.59496E-03	-0.35871E-01	-0.24888E-02	-0.28830E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 3.3.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

DATE: MARCH 31, 1981

TABLE 3.3.7B

NORMALIZED BAG FRACTIONS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1970	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1970-1973	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1974-1978	1.398	0.060	0.885	0.055	0.919	0.036	1.000	0.051
	1979-1980	2.092	0.248	0.649	0.254	0.846	0.152	1.000	0.225
	1981-1984	2.092	1.339	0.649	1.014	0.846	0.717	1.000	1.000
	1985+	2.961	0.164	0.407	0.598	0.652	0.566	1.000	0.500
CO	Pre-1970	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1970-1973	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1974-1978	1.573	0.054	0.902	0.079	0.755	0.029	1.000	0.060
	1979-1980	2.413	0.143	0.608	0.180	0.681	0.068	1.000	0.142
	1981-1984	2.413	0.657	0.608	0.503	0.681	0.251	1.000	0.466
	1985+	3.184	0.551	0.345	0.589	0.601	0.479	1.000	0.551
NOx	Pre-1970	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1970-1973	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0
	1974-1978	1.262	0.022	0.770	0.004	1.242	0.027	1.000	0.014
	1979-1980	1.393	0.050	0.754	0.052	1.172	0.079	1.000	0.059
	1981-1984	1.393	0.056	0.754	0.056	1.172	0.085	1.000	0.064
	1985+	1.801	0.169	0.653	0.141	1.059	0.296	1.000	0.189

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.3.8A

AIR CONDITIONING CORRECTION FACTORS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* ACCF= U*V*(A + B*(T-75) -1) + 1

Model Years	HC		CO		NOx	
	A	B	A	B	A	B
Pre-1979	0.1023E+01	0.3344E-02	0.1202E+01	0.1808E-02	0.1299E+01	0.5643E-04
1979+	0.1000E+01	0.3512E-02	0.1130E+01	0.1528E-02	0.1221E+01	0.4262E-03

*WHERE:
- ACCF = Air Conditioning Correction Factor
- V = Fraction of vehicles which are equipped with AC given in Table 3.3.8B
- U = Fraction of vehicles with AC that are using it = (DI-DILO)/(DIHI-DI), 0<=U<=1
- DI = Discomfort index = (DB+WB)*.4+15
- DILO = The highest discomfort index where no AC is used
- DIHI = The lowest discomfort index where all vehicles with AC use it
- DB = Dry bulb temperature (Fahrenheit)
- WB = Wet bulb temperature (Fahrenheit)
- T = Ambient temperature (Fahrenheit)

TABLE 3.3.8B

ESTIMATED FRACTION OF
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II
EQUIPPED WITH AIR CONDITIONING

Model Years	Fraction Equipped With Air Conditioning
Pre-1977	0.32
1977	0.52
1978+	0.39

DATE: MARCH 31, 1981

TABLE 3.3.9

EXTRA LOAD CORRECTION FACTORS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* XLCF = (XLC-1)*U + 1

Model Years	Coefficients (XLC) HC	CO	NOx
Pre-1970	1.0786	1.2765	0.9535
1970-1973	1.0495	1.1384	1.0313
1974-1978	1.0556	1.1347	1.0753
1979+	1.0455	1.3058	1.0719

* WHERE:
XLCF = Extra load correction factor
U = Fraction of VMT with an extra load
XLC = Correction factor coefficient

TABLE 3.3.10

TRAILER TOWING CORRECTION FACTORS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY GASOLINE POWERED TRUCKS II

* TTCF = (TTC-1)*U + 1

Model Years	Coefficients (TTC) HC	CO	NOx
Pre-1970	1.2614	1.9327	1.1184
1970-1973	1.2762	1.8940	1.1384
1974-1978	1.7288	2.1414	1.2170
1979+	1.5909	3.9722	1.3875

* WHERE:
TTCF = Trailer towing correction factor
U = Fraction of VMT towing a trailer
TTC = Correction factor coefficient

DATE: MARCH 31, 1981

TABLE 3.4.1A

EXHAUST EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1970	23.56	0.35	25.31
	1970-1973	15.12	0.47	17.47
	1974-1978	15.12	0.32	16.72
	1979-1983	6.65	0.14	7.35
	1984	2.68	0.39	4.63
	1985+	1.36	0.40	3.36
CO	Pre-1970	342.36	5.46	369.66
	1970-1973	352.82	8.75	396.57
	1974-1978	352.82	8.37	394.67
	1979-1983	268.36	6.37	300.21
	1984	27.37	3.48	44.77
	1985+	11.28	6.31	42.83
NOx	Pre-1970	5.06	0.0	5.06
	1970-1973	7.64	0.0	7.64
	1974-1978	6.29	0.09	6.74
	1979-1983	6.29	0.09	6.74
	1984	11.69	0.63	14.84
	1985+	1.88	0.29	3.33

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.3, for the emission standards.

DATE: MARCH 31, 1981

TABLE 3.4.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1968	16.51	6.88	41.47	36.70	7.35	11.58
1968-1983	16.51	6.88	41.47	36.70	0.0	4.23
1984+	1.12	6.88	1.91	36.70	0.0	0.26

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 3.4.2A

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	30.3	1952	30.3	1953	30.3	1954	30.3	1955	30.3	1956	30.3	1957	30.3	1958	30.3	1959	30.3	1960	30.3	1961	30.3	1962	30.3
1952	30.1	1953	30.1	1954	30.1	1955	30.1	1956	30.1	1957	30.1	1958	30.1	1959	30.1	1960	30.1	1961	30.1	1962	30.1	1963	30.1
1953	29.9	1954	29.9	1955	29.9	1956	29.9	1957	29.9	1958	29.9	1959	29.9	1960	29.9	1961	29.9	1962	29.9	1963	29.9	1964	29.9
1954	29.7	1955	29.7	1956	29.7	1957	29.7	1958	29.7	1959	29.7	1960	29.7	1961	29.7	1962	29.7	1963	29.7	1964	29.7	1965	29.7
1955	29.5	1956	29.5	1957	29.5	1958	29.5	1959	29.5	1960	29.5	1961	29.5	1962	29.5	1963	29.5	1964	29.5	1965	29.5	1966	29.5
1956	29.3	1957	29.3	1958	29.3	1959	29.3	1960	29.3	1961	29.3	1962	29.3	1963	29.3	1964	29.3	1965	29.3	1966	29.3	1967	29.3
1957	29.1	1958	29.1	1959	29.1	1960	29.1	1961	29.1	1962	29.1	1963	29.1	1964	29.1	1965	29.1	1966	29.1	1967	29.1	1968	29.1
1958	28.8	1959	28.8	1960	28.8	1961	28.8	1962	28.8	1963	28.8	1964	28.8	1965	28.8	1966	28.8	1967	28.8	1968	28.8	1969	28.8
1959	28.6	1960	28.6	1961	28.6	1962	28.6	1963	28.6	1964	28.6	1965	28.6	1966	28.6	1967	28.6	1968	28.6	1969	28.6	1970	21.8
1960	28.3	1961	28.3	1962	28.3	1963	28.3	1964	28.3	1965	28.3	1966	28.3	1967	28.3	1968	28.3	1969	28.3	1970	21.4	1971	21.4
1961	28.0	1962	28.0	1963	28.0	1964	28.0	1965	28.0	1966	28.0	1967	28.0	1968	28.0	1969	28.0	1970	21.0	1971	21.0	1972	21.0
1962	27.6	1963	27.6	1964	27.6	1965	27.6	1966	27.6	1967	27.6	1968	27.6	1969	27.6	1970	20.6	1971	20.6	1972	20.6	1973	20.6
1963	27.2	1964	27.2	1965	27.2	1966	27.2	1967	27.2	1968	27.2	1969	27.2	1970	20.1	1971	20.1	1972	20.1	1973	20.1	1974	18.5
1964	26.8	1965	26.8	1966	26.8	1967	26.8	1968	26.8	1969	26.8	1970	19.5	1971	19.5	1972	19.5	1973	19.5	1974	18.1	1975	18.1
1965	26.3	1966	26.3	1967	26.3	1968	26.3	1969	26.3	1970	18.9	1971	18.9	1972	18.9	1973	18.9	1974	17.7	1975	17.7	1976	17.7
1966	25.8	1967	25.8	1968	25.8	1969	25.8	1970	18.2	1971	18.2	1972	18.2	1973	18.2	1974	17.2	1975	17.2	1976	17.2	1977	17.2
1967	25.3	1968	25.3	1969	25.3	1970	17.4	1971	17.4	1972	17.4	1973	17.4	1974	16.7	1975	16.7	1976	16.7	1977	16.7	1978	16.7
1968	24.6	1969	24.6	1970	16.6	1971	16.6	1972	16.6	1973	16.6	1974	16.1	1975	16.1	1976	16.1	1977	16.1	1978	16.1	1979	7.1
1969	23.9	1970	15.6	1971	15.6	1972	15.6	1973	15.6	1974	15.5	1975	15.5	1976	15.5	1977	15.5	1978	15.5	1979	6.8	1980	6.8
1970	15.1	1971	15.1	1972	15.1	1973	15.1	1974	15.1	1975	15.1	1976	15.1	1977	15.1	1978	15.1	1979	6.6	1980	6.6	1981	6.6

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	30.3	1964	30.3	1965	30.3	1966	30.3	1967	30.3	1968	30.3	1969	30.3	1970	24.1	1971	24.1	1972	24.1	1973	24.1	1974	21.2
1964	30.1	1965	30.1	1966	30.1	1967	30.1	1968	30.1	1969	30.1	1970	23.9	1971	23.9	1972	23.9	1973	23.9	1974	21.1	1975	21.1
1965	29.9	1966	29.9	1967	29.9	1968	29.9	1969	29.9	1970	23.6	1971	23.6	1972	23.6	1973	23.6	1974	20.9	1975	20.9	1976	20.9
1966	29.7	1967	29.7	1968	29.7	1969	29.7	1970	23.4	1971	23.4	1972	23.4	1973	23.4	1974	20.7	1975	20.7	1976	20.7	1977	20.7
1967	29.5	1968	29.5	1969	29.5	1970	23.1	1971	23.1	1972	23.1	1973	23.1	1974	20.6	1975	20.6	1976	20.6	1977	20.6	1978	20.6
1968	29.3	1969	29.3	1970	22.8	1971	22.8	1972	22.8	1973	22.8	1974	20.4	1975	20.4	1976	20.4	1977	20.4	1978	20.4	1979	8.9
1969	29.1	1970	22.5	1971	22.5	1972	22.5	1973	22.5	1974	20.2	1975	20.2	1976	20.2	1977	20.2	1978	20.2	1979	8.9	1980	8.9
1970	22.2	1971	22.2	1972	22.2	1973	22.2	1974	19.9	1975	19.9	1976	19.9	1977	19.9	1978	19.9	1979	8.8	1980	8.8	1981	8.8
1971	21.8	1972	21.8	1973	21.8	1974	19.7	1975	19.7	1976	19.7	1977	19.7	1978	19.7	1979	8.7	1980	8.7	1981	8.7	1982	8.7
1972	21.4	1973	21.4	1974	19.4	1975	19.4	1976	19.4	1977	19.4	1978	19.4	1979	8.5	1980	8.5	1981	8.5	1982	8.5	1983	8.5
1973	21.0	1974	19.1	1975	19.1	1976	19.1	1977	19.1	1978	19.1	1979	8.4	1980	8.4	1981	8.4	1982	8.4	1983	8.4	1984	7.6
1974	18.8	1975	18.8	1976	18.8	1977	18.8	1978	18.8	1979	8.3	1980	8.3	1981	8.3	1982	8.3	1983	8.3	1984	7.2	1985	6.0
1975	18.5	1976	18.5	1977	18.5	1978	18.5	1979	8.1	1980	8.1	1981	8.1	1982	8.1	1983	8.1	1984	6.8	1985	5.6	1986	5.6
1976	18.1	1977	18.1	1978	18.1	1979	8.0	1980	8.0	1981	8.0	1982	8.0	1983	8.0	1984	6.3	1985	5.1	1986	5.1	1987	5.1
1977	17.7	1978	17.7	1979	7.8	1980	7.8	1981	7.8	1982	7.8	1983	7.8	1984	5.8	1985	4.5	1986	4.5	1987	4.5	1988	4.5
1978	17.2	1979	7.6	1980	7.6	1981	7.6	1982	7.6	1983	7.6	1984	5.2	1985	4.0	1986	4.0	1987	4.0	1988	4.0	1989	4.0
1979	7.3	1980	7.3	1981	7.3	1982	7.3	1983	7.3	1984	4.6	1985	3.3	1986	3.3	1987	3.3	1988	3.3	1989	3.3	1990	3.3
1980	7.1	1981	7.1	1982	7.1	1983	7.1	1984	3.9	1985	2.6	1986	2.6	1987	2.6	1988	2.6	1989	2.6	1990	2.6	1991	2.6
1981	6.8	1982	6.8	1983	6.8	1984	3.1	1985	1.8	1986	1.8	1987	1.8	1988	1.8	1989	1.8	1990	1.8	1991	1.8	1992	1.8
1982	6.6	1983	6.6	1984	2.7	1985	1.4	1986	1.4	1987	1.4	1988	1.4	1989	1.4	1990	1.4	1991	1.4	1992	1.4	1993	1.4

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F. Emissions are based on the January 1 mileage accumulation figures given in Table 3.4.4.

DATE: MARCH 31, 1981

TABLE 3.4.2B

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	446.8	1952	446.8	1953	446.8	1954	446.8	1955	446.8	1956	446.8	1957	446.8	1958	446.8	1959	446.8	1960	446.8	1961	446.8	1962	446.8
1952	444.1	1953	444.1	1954	444.1	1955	444.1	1956	444.1	1957	444.1	1958	444.1	1959	444.1	1960	444.1	1961	444.1	1962	444.1	1963	444.1
1953	441.3	1954	441.3	1955	441.3	1956	441.3	1957	441.3	1958	441.3	1959	441.3	1960	441.3	1961	441.3	1962	441.3	1963	441.3	1964	441.3
1954	438.4	1955	438.4	1956	438.4	1957	438.4	1958	438.4	1959	438.4	1960	438.4	1961	438.4	1962	438.4	1963	438.4	1964	438.4	1965	438.4
1955	435.3	1956	435.3	1957	435.3	1958	435.3	1959	435.3	1960	435.3	1961	435.3	1962	435.3	1963	435.3	1964	435.3	1965	435.3	1966	435.3
1956	431.9	1957	431.9	1958	431.9	1959	431.9	1960	431.9	1961	431.9	1962	431.9	1963	431.9	1964	431.9	1965	431.9	1966	431.9	1967	431.9
1957	428.4	1958	428.4	1959	428.4	1960	428.4	1961	428.4	1962	428.4	1963	428.4	1964	428.4	1965	428.4	1966	428.4	1967	428.4	1968	428.4
1958	424.6	1959	424.6	1960	424.6	1961	424.6	1962	424.6	1963	424.6	1964	424.6	1965	424.6	1966	424.6	1967	424.6	1968	424.6	1969	424.6
1959	420.4	1960	420.4	1961	420.4	1962	420.4	1963	420.4	1964	420.4	1965	420.4	1966	420.4	1967	420.4	1968	420.4	1969	420.4	1970	477.9
1960	415.9	1961	415.9	1962	415.9	1963	415.9	1964	415.9	1965	415.9	1966	415.9	1967	415.9	1968	415.9	1969	415.9	1970	470.6	1971	470.6
1961	410.9	1962	410.9	1963	410.9	1964	410.9	1965	410.9	1966	410.9	1967	410.9	1968	410.9	1969	410.9	1970	462.7	1971	462.7	1972	462.7
1962	405.6	1963	405.6	1964	405.6	1965	405.6	1966	405.6	1967	405.6	1968	405.6	1969	405.6	1970	454.1	1971	454.1	1972	454.1	1973	454.1
1963	399.7	1964	399.7	1965	399.7	1966	399.7	1967	399.7	1968	399.7	1969	399.7	1970	444.7	1971	444.7	1972	444.7	1973	444.7	1974	440.7
1964	393.1	1965	393.1	1966	393.1	1967	393.1	1968	393.1	1969	393.1	1970	434.2	1971	434.2	1972	434.2	1973	434.2	1974	430.7	1975	430.7
1965	385.8	1966	385.8	1967	385.8	1968	385.8	1969	385.8	1970	422.5	1971	422.5	1972	422.5	1973	422.5	1974	419.5	1975	419.5	1976	419.5
1966	377.8	1967	377.8	1968	377.8	1969	377.8	1970	409.6	1971	409.6	1972	409.6	1973	409.6	1974	407.1	1975	407.1	1976	407.1	1977	407.1
1967	368.8	1968	368.8	1969	368.8	1970	395.3	1971	395.3	1972	395.3	1973	395.3	1974	393.4	1975	393.4	1976	393.4	1977	393.4	1978	393.4
1968	359.0	1969	359.0	1970	379.5	1971	379.5	1972	379.5	1973	379.5	1974	378.3	1975	378.3	1976	378.3	1977	378.3	1978	378.3	1979	287.8
1969	348.1	1970	362.0	1971	362.0	1972	362.0	1973	362.0	1974	361.6	1975	361.6	1976	361.6	1977	361.6	1978	361.6	1979	275.0	1980	275.0
1970	352.8	1971	352.8	1972	352.8	1973	352.8	1974	352.8	1975	352.8	1976	352.8	1977	352.8	1978	352.8	1979	268.4	1980	268.4	1981	268.4

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	446.8	1964	446.8	1965	446.8	1966	446.8	1967	446.8	1968	446.8	1969	446.8	1970	520.2	1971	520.2	1972	520.2	1973	520.2	1974	512.9
1964	444.1	1965	444.1	1966	444.1	1967	444.1	1968	444.1	1969	444.1	1970	515.8	1971	515.8	1972	515.8	1973	515.8	1974	508.8	1975	508.8
1965	441.3	1966	441.3	1967	441.3	1968	441.3	1969	441.3	1970	511.4	1971	511.4	1972	511.4	1973	511.4	1974	504.5	1975	504.5	1976	504.5
1966	438.4	1967	438.4	1968	438.4	1969	438.4	1970	506.7	1971	506.7	1972	506.7	1973	506.7	1974	500.0	1975	500.0	1976	500.0	1977	500.0
1967	435.3	1968	435.3	1969	435.3	1970	501.7	1971	501.7	1972	501.7	1973	501.7	1974	495.2	1975	495.2	1976	495.2	1977	495.2	1978	495.2
1968	431.9	1969	431.9	1970	496.4	1971	496.4	1972	496.4	1973	496.4	1974	490.1	1975	490.1	1976	490.1	1977	490.1	1978	490.1	1979	372.9
1969	428.4	1970	490.7	1971	490.7	1972	490.7	1973	490.7	1974	484.7	1975	484.7	1976	484.7	1977	484.7	1978	484.7	1979	368.7	1980	368.7
1970	484.6	1971	484.6	1972	484.6	1973	484.6	1974	478.8	1975	478.8	1976	478.8	1977	478.8	1978	478.8	1979	364.3	1980	364.3	1981	364.3
1971	477.9	1972	477.9	1973	477.9	1974	472.4	1975	472.4	1976	472.4	1977	472.4	1978	472.4	1979	359.4	1980	359.4	1981	359.4	1982	359.4
1972	470.6	1973	470.6	1974	465.5	1975	465.5	1976	465.5	1977	465.5	1978	465.5	1979	354.1	1980	354.1	1981	354.1	1982	354.1	1983	354.1
1973	462.7	1974	457.9	1975	457.9	1976	457.9	1977	457.9	1978	457.9	1979	348.4	1980	348.4	1981	348.4	1982	348.4	1983	348.4	1984	71.1
1974	449.7	1975	449.7	1976	449.7	1977	449.7	1978	449.7	1979	342.1	1980	342.1	1981	342.1	1982	342.1	1983	342.1	1984	67.7	1985	84.3
1975	440.7	1976	440.7	1977	440.7	1978	440.7	1979	335.2	1980	335.2	1981	335.2	1982	335.2	1983	335.2	1984	63.9	1985	77.5	1986	77.5
1976	430.7	1977	430.7	1978	430.7	1979	327.6	1980	327.6	1981	327.6	1982	327.6	1983	327.6	1984	59.7	1985	70.0	1986	70.0	1987	70.0
1977	419.5	1978	419.5	1979	319.1	1980	319.1	1981	319.1	1982	319.1	1983	319.1	1984	55.1	1985	61.5	1986	61.5	1987	61.5	1988	61.5
1978	407.1	1979	309.7	1980	309.7	1981	309.7	1982	309.7	1983	309.7	1984	49.9	1985	52.2	1986	52.2	1987	52.2	1988	52.2	1989	52.2
1979	299.3	1980	299.3	1981	299.3	1982	299.3	1983	299.3	1984	44.2	1985	41.9	1986	41.9	1987	41.9	1988	41.9	1989	41.9	1990	41.9
1980	287.8	1981	287.8	1982	287.8	1983	287.8	1984	38.0	1985	30.5	1986	30.5	1987	30.5	1988	30.5	1989	30.5	1990	30.5	1991	30.5
1981	275.0	1982	275.0	1983	275.0	1984	31.0	1985	17.9	1986	17.9	1987	17.9	1988	17.9	1989	17.9	1990	17.9	1991	17.9	1992	17.9
1982	268.4	1983	268.4	1984	27.4	1985	11.3	1986	11.3	1987	11.3	1988	11.3	1989	11.3	1990	11.3	1991	11.3	1992	11.3	1993	11.3

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F. Emissions are based on the January 1 mileage accumulation figures given in Table 3.4.4.

DATE: MARCH 31, 1981

TABLE 3.4.2C

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	5.1	1952	5.1	1953	5.1	1954	5.1	1955	5.1	1956	5.1	1957	5.1	1958	5.1	1959	5.1	1960	5.1	1961	5.1	1962	5.1
1952	5.1	1953	5.1	1954	5.1	1955	5.1	1956	5.1	1957	5.1	1958	5.1	1959	5.1	1960	5.1	1961	5.1	1962	5.1	1963	5.1
1953	5.1	1954	5.1	1955	5.1	1956	5.1	1957	5.1	1958	5.1	1959	5.1	1960	5.1	1961	5.1	1962	5.1	1963	5.1	1964	5.1
1954	5.1	1955	5.1	1956	5.1	1957	5.1	1958	5.1	1959	5.1	1960	5.1	1961	5.1	1962	5.1	1963	5.1	1964	5.1	1965	5.1
1955	5.1	1956	5.1	1957	5.1	1958	5.1	1959	5.1	1960	5.1	1961	5.1	1962	5.1	1963	5.1	1964	5.1	1965	5.1	1966	5.1
1956	5.1	1957	5.1	1958	5.1	1959	5.1	1960	5.1	1961	5.1	1962	5.1	1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1
1957	5.1	1958	5.1	1959	5.1	1960	5.1	1961	5.1	1962	5.1	1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1
1958	5.1	1959	5.1	1960	5.1	1961	5.1	1962	5.1	1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1
1959	5.1	1960	5.1	1961	5.1	1962	5.1	1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6
1960	5.1	1961	5.1	1962	5.1	1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6
1961	5.1	1962	5.1	1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6
1962	5.1	1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6
1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	7.2
1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	7.1	1975	7.1
1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	7.0	1975	7.0	1976	7.0
1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	6.9	1975	6.9	1976	6.9	1977	6.9
1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	6.7	1975	6.7	1976	6.7	1977	6.7	1978	6.7
1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	6.6	1975	6.6	1976	6.6	1977	6.6	1978	6.6	1979	6.6
1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	6.4	1975	6.4	1976	6.4	1977	6.4	1978	6.4	1979	6.4	1980	6.4
1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	6.3	1975	6.3	1976	6.3	1977	6.3	1978	6.3	1979	6.3	1980	6.3	1981	6.3

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	5.1	1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	8.0
1964	5.1	1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	8.0	1975	8.0
1965	5.1	1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	7.9	1975	7.9	1976	7.9
1966	5.1	1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	7.9	1975	7.9	1976	7.9	1977	7.9
1967	5.1	1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	7.8	1975	7.8	1976	7.8	1977	7.8	1978	7.8
1968	5.1	1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	7.8	1975	7.8	1976	7.8	1977	7.8	1978	7.8	1979	7.8
1969	5.1	1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	7.7	1975	7.7	1976	7.7	1977	7.7	1978	7.7	1979	7.7	1980	7.7
1970	7.6	1971	7.6	1972	7.6	1973	7.6	1974	7.6	1975	7.6	1976	7.6	1977	7.6	1978	7.6	1979	7.6	1980	7.6	1981	7.6
1971	7.6	1972	7.6	1973	7.6	1974	7.6	1975	7.6	1976	7.6	1977	7.6	1978	7.6	1979	7.6	1980	7.6	1981	7.6	1982	7.6
1972	7.6	1973	7.6	1974	7.5	1975	7.5	1976	7.5	1977	7.5	1978	7.5	1979	7.5	1980	7.5	1981	7.5	1982	7.5	1983	7.5
1973	7.6	1974	7.4	1975	7.4	1976	7.4	1977	7.4	1978	7.4	1979	7.4	1980	7.4	1981	7.4	1982	7.4	1983	7.4	1984	19.6
1974	7.3	1975	7.3	1976	7.3	1977	7.3	1978	7.3	1979	7.3	1980	7.3	1981	7.3	1982	7.3	1983	7.3	1984	19.0	1985	5.2
1975	7.2	1976	7.2	1977	7.2	1978	7.2	1979	7.2	1980	7.2	1981	7.2	1982	7.2	1983	7.2	1984	18.3	1985	4.9	1986	4.9
1976	7.1	1977	7.1	1978	7.1	1979	7.1	1980	7.1	1981	7.1	1982	7.1	1983	7.1	1984	17.5	1985	4.6	1986	4.6	1987	4.6
1977	7.0	1978	7.0	1979	7.0	1980	7.0	1981	7.0	1982	7.0	1983	7.0	1984	16.7	1985	4.2	1986	4.2	1987	4.2	1988	4.2
1978	6.9	1979	6.9	1980	6.9	1981	6.9	1982	6.9	1983	6.9	1984	15.8	1985	3.8	1986	3.8	1987	3.8	1988	3.8	1989	3.8
1979	6.7	1980	6.7	1981	6.7	1982	6.7	1983	6.7	1984	14.7	1985	3.3	1986	3.3	1987	3.3	1988	3.3	1989	3.3	1990	3.3
1980	6.6	1981	6.6	1982	6.6	1983	6.6	1984	13.6	1985	2.8	1986	2.8	1987	2.8	1988	2.8	1989	2.8	1990	2.8	1991	2.8
1981	6.4	1982	6.4	1983	6.4	1984	12.4	1985	2.2	1986	2.2	1987	2.2	1988	2.2	1989	2.2	1990	2.2	1991	2.2	1992	2.2
1982	6.3	1983	6.3	1984	11.7	1985	1.9	1986	1.9	1987	1.9	1988	1.9	1989	1.9	1990	1.9	1991	1.9	1992	1.9	1993	1.9

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 3.4.4.

DATE: MARCH 31, 1981

TABLE 3.4.3

IDLE EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1970	2.83	0.04
	1970-1973	0.87	0.04
	1974-1978	0.87	0.02
	1979-1983	0.44	0.01
	1984	0.23	0.03
	1985+	0.12	0.04
CO	Pre-1970	25.75	0.53
	1970-1973	6.80	0.28
	1974-1978	6.80	0.27
	1979-1983	7.09	0.28
	1984	1.21	0.14
	1985+	0.49	0.28
NOx	Pre-1970	0.05	0.0
	1970-1973	0.03	0.0
	1974-1978	0.03	0.0
	1979-1983	0.03	0.0
	1984	0.07	0.0
	1985+	0.01	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.4.4

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.128	21000.	0.0	0.	0.
2	0.114	18900.	0.114	21000.	10500.
3	0.097	17200.	0.097	18900.	30450.
4	0.073	15500.	0.073	17200.	48500.
5	0.086	14100.	0.086	15500.	64850.
6	0.088	12600.	0.088	14100.	79650.
7	0.070	11300.	0.070	12600.	93000.
8	0.053	10300.	0.053	11300.	104950.
9	0.041	9400.	0.041	10300.	115750.
10	0.044	8600.	0.044	9400.	125600.
11	0.040	8000.	0.040	8600.	134600.
12	0.031	7300.	0.031	8000.	142900.
13	0.030	6700.	0.030	7300.	150550.
14	0.026	6300.	0.026	6700.	157549.
15	0.021	5900.	0.021	6300.	164049.
16	0.018	5500.	0.018	5900.	170149.
17	0.013	5200.	0.013	5500.	175849.
18	0.009	5000.	0.009	5200.	181199.
19	0.008	5000.	0.008	5000.	186299.
20+	0.010	5000.	0.010	5000.	191299.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 3.4.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) HDGV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) HDGV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.0	1.000	0.0	0.0	0.	0.0	0.0
1984	0.114	1.000	0.114	0.131	21000.	2741.7	0.202
1983	0.097	1.000	0.097	0.112	18900.	2110.1	0.156
1982	0.073	1.000	0.073	0.084	17200.	1449.1	0.107
1981	0.086	1.000	0.086	0.098	15500.	1524.4	0.113
1980	0.088	1.000	0.088	0.101	14100.	1425.5	0.105
1979	0.070	1.000	0.070	0.081	12600.	1018.2	0.075
1978	0.053	1.000	0.053	0.061	11300.	691.7	0.051
1977	0.041	1.000	0.041	0.047	10300.	487.6	0.036
1976	0.044	1.000	0.044	0.050	9400.	473.0	0.035
1975	0.040	1.000	0.040	0.045	8600.	390.4	0.029
1974	0.031	1.000	0.031	0.035	8000.	280.6	0.021
1973	0.030	1.000	0.030	0.034	7300.	250.2	0.018
1972	0.026	1.000	0.026	0.030	6700.	200.4	0.015
1971	0.021	1.000	0.021	0.024	6300.	148.8	0.011
1970	0.018	1.000	0.018	0.020	5900.	119.7	0.009
1969	0.013	1.000	0.013	0.015	5500.	81.3	0.006
1968	0.009	1.000	0.009	0.011	5200.	54.8	0.004
1967	0.008	1.000	0.008	0.009	5000.	47.0	0.003
1966-	0.010	1.000	0.010	0.011	5000.	55.6	0.004
		DAF:	0.872		TFNORM:	13550.2	

WHERE:

A = January 1 registration mix from Table 3.4.4.
B = Fleet sales fractions will always equal 1.000 for HDGVs.
D = Sales weighted fleet mileage accumulation rate from Table 3.4.4, adjusted to January 1.
D(1) = 0
D(MYI) = Annual Miles(MYI-1) , MYI=2,...,20+

DATE: MARCH 31, 1981

TABLE 3.4.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

* $SCF(s) = EXP(A + B*s + C*s^2)$, HC & CO
$= A + B*s + C*s^2$, NOx

Pol	Model Years	Coefficients A	B	C
HC	Pre-1970	1.60800	-0.09700	0.00083
	1970-1973	1.60800	-0.09700	0.00083
	1974-1978	1.60800	-0.09700	0.00083
	1979-1983	1.60800	-0.09700	0.00083
	1984	1.60800	-0.09700	0.00083
	1985+	1.60800	-0.09700	0.00083
CO	Pre-1970	1.52000	-0.09800	0.00110
	1970-1973	1.52000	-0.09800	0.00110
	1974-1978	1.52000	-0.09800	0.00110
	1979-1983	1.52000	-0.09800	0.00110
	1984	1.52000	-0.09800	0.00110
	1985+	1.52000	-0.09800	0.00110
NOx	Pre-1970	0.82400	0.00880	0.0
	1970-1973	0.82400	0.00880	0.0
	1974-1978	0.82400	0.00880	0.0
	1979-1983	0.82400	0.00880	0.0
	1984	0.82400	0.00880	0.0
	1985+	0.82400	0.00880	0.0

* where s = average speed (mph)

DATE: MARCH 31, 1981

TABLE 3.4.7

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY GASOLINE POWERED VEHICLES

* TCF = EXP(TC * (T - TT))

Pol	Model Years	TC Low	TC High
HC	Pre-1970	-0.58903E-02	0.13458E-02
	1970-1973	-0.73870E-02	0.52317E-02
	1974-1978	-0.49759E-02	0.54651E-02
	1979-1983	-0.28549E-02	0.10082E-01
	1984	-0.74107E-02	0.20546E-01
	1985+	-0.92859E-02	0.84842E-02
CO	Pre-1970	-0.20576E-02	0.81720E-02
	1970-1973	-0.45541E-02	0.?0268E-01
	1974-1978	-0.42899E-02	0.?4127E-01
	1979-1983	-0.13085E-02	0.22061E-01
	1984	-0.77117E-02	0.27019E-01
	1985+	-0.60195E-02	0.71457E-02
NOx	Pre-1970	-0.64315E-02	-0.83986E-02
	1970-1973	-0.55456E-02	-0.86880E-02
	1974-1978	-0.13969E-02	-0.18079E-01
	1979-1983	-0.46352E-03	-0.74889E-02
	1984	-0.57524E-02	-0.21593E-01
	1985+	-0.19733E-02	-0.29584E-01

* WHERE:
T = Ambient temperature (Fahrenheit)
TC = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

DATE: MARCH 31, 1981

TABLE 3.5.1

EXHAUST EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1975	3.01	0.08	3.41
	1975-1976	0.99	0.05	1.24
	1977	1.17	0.03	1.32
	1978	1.86	0.07	2.21
	1979	1.63	0.05	1.88
	1980-1981	0.90	0.03	1.05
	1982-1983	0.54	0.03	0.69
	1984+	0.39	0.03	0.54
CO	Pre-1975	4.74	0.13	5.39
	1975-1976	2.10	0.06	2.40
	1977	2.43	0.08	2.83
	1978	2.56	0.09	3.01
	1979	2.66	0.08	3.06
	1980-1981	2.22	0.05	2.47
	1982-1983	2.22	0.05	2.47
	1984+	1.27	0.05	1.52
NOx	Pre-1975	1.46	0.04	1.66
	1975-1976	1.77	0.03	1.92
	1977	1.33	0.07	1.68
	1978	1.62	0.05	1.87
	1979	1.46	0.06	1.76
	1980	1.49	0.06	1.79
	1981-1982	1.11	0.06	1.41
	1983+	0.75	0.05	1.00

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.1, for the emission standards.

DATE: MARCH 31, 1981

TABLE 3.5.2A

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	4.5	1952	4.5	1953	4.5	1954	4.5	1955	4.5	1956	4.5	1957	4.5	1958	4.5	1959	4.5	1960	4.5	1961	4.5	1962	4.5
1952	4.4	1953	4.4	1954	4.4	1955	4.4	1956	4.4	1957	4.4	1958	4.4	1959	4.4	1960	4.4	1961	4.4	1962	4.4	1963	4.4
1953	4.4	1954	4.4	1955	4.4	1956	4.4	1957	4.4	1958	4.4	1959	4.4	1960	4.4	1961	4.4	1962	4.4	1963	4.4	1964	4.4
1954	4.3	1955	4.3	1956	4.3	1957	4.3	1958	4.3	1959	4.3	1960	4.3	1961	4.3	1962	4.3	1963	4.3	1964	4.3	1965	4.3
1955	4.3	1956	4.3	1957	4.3	1958	4.3	1959	4.3	1960	4.3	1961	4.3	1962	4.3	1963	4.3	1964	4.3	1965	4.3	1966	4.3
1956	4.2	1957	4.2	1958	4.2	1959	4.2	1960	4.2	1961	4.2	1962	4.2	1963	4.2	1964	4.2	1965	4.2	1966	4.2	1967	4.2
1957	4.2	1958	4.2	1959	4.2	1960	4.2	1961	4.2	1962	4.2	1963	4.2	1964	4.2	1965	4.2	1966	4.2	1967	4.2	1968	4.2
1958	4.1	1959	4.1	1960	4.1	1961	4.1	1962	4.1	1963	4.1	1964	4.1	1965	4.1	1966	4.1	1967	4.1	1968	4.1	1969	4.1
1959	4.0	1960	4.0	1961	4.0	1962	4.0	1963	4.0	1964	4.0	1965	4.0	1966	4.0	1967	4.0	1968	4.0	1969	4.0	1970	4.0
1960	4.0	1961	4.0	1962	4.0	1963	4.0	1964	4.0	1965	4.0	1966	4.0	1967	4.0	1968	4.0	1969	4.0	1970	4.0	1971	4.0
1961	3.9	1962	3.9	1963	3.9	1964	3.9	1965	3.9	1966	3.9	1967	3.9	1968	3.9	1969	3.9	1970	3.9	1971	3.9	1972	3.9
1962	3.8	1963	3.8	1964	3.8	1965	3.8	1966	3.8	1967	3.8	1968	3.8	1969	3.8	1970	3.8	1971	3.8	1972	3.8	1973	3.8
1963	3.7	1964	3.7	1965	3.7	1966	3.7	1967	3.7	1968	3.7	1969	3.7	1970	3.7	1971	3.7	1972	3.7	1973	3.7	1974	3.7
1964	3.6	1965	3.6	1966	3.6	1967	3.6	1968	3.6	1969	3.6	1970	3.6	1971	3.6	1972	3.6	1973	3.6	1974	3.6	1975	1.4
1965	3.5	1966	3.5	1967	3.5	1968	3.5	1969	3.5	1970	3.5	1971	3.5	1972	3.5	1973	3.5	1974	3.5	1975	1.3	1976	1.3
1966	3.4	1967	3.4	1968	3.4	1969	3.4	1970	3.4	1971	3.4	1972	3.4	1973	3.4	1974	3.4	1975	1.2	1976	1.2	1977	1.3
1967	3.3	1968	3.3	1969	3.3	1970	3.3	1971	3.3	1972	3.3	1973	3.3	1974	3.3	1975	1.2	1976	1.2	1977	1.3	1978	2.1
1968	3.2	1969	3.2	1970	3.2	1971	3.2	1972	3.2	1973	3.2	1974	3.2	1975	1.1	1976	1.1	1977	1.2	1978	2.0	1979	1.8
1969	3.1	1970	3.1	1971	3.1	1972	3.1	1973	3.1	1974	3.1	1975	1.0	1976	1.0	1977	1.2	1978	1.9	1979	1.7	1980	0.9
1970	3.0	1971	3.0	1972	3.0	1973	3.0	1974	3.0	1975	1.0	1976	1.0	1977	1.2	1978	1.9	1979	1.6	1980	0.9	1981	0.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	4.5	1964	4.5	1965	4.5	1966	4.5	1967	4.5	1968	4.5	1969	4.5	1970	4.5	1971	4.5	1972	4.5	1973	4.5	1974	4.5
1964	4.4	1965	4.4	1966	4.4	1967	4.4	1968	4.4	1969	4.4	1970	4.4	1971	4.4	1972	4.4	1973	4.4	1974	4.4	1975	1.9
1965	4.4	1966	4.4	1967	4.4	1968	4.4	1969	4.4	1970	4.4	1971	4.4	1972	4.4	1973	4.4	1974	4.4	1975	1.8	1976	1.8
1966	4.3	1967	4.3	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	4.3	1975	1.8	1976	1.8	1977	1.7
1967	4.3	1968	4.3	1969	4.3	1970	4.3	1971	4.3	1972	4.3	1973	4.3	1974	4.3	1975	1.8	1976	1.8	1977	1.6	1978	3.0
1968	4.2	1969	4.2	1970	4.2	1971	4.2	1972	4.2	1973	4.2	1974	4.2	1975	1.7	1976	1.7	1977	1.6	1978	2.9	1979	2.4
1969	4.2	1970	4.2	1971	4.2	1972	4.2	1973	4.2	1974	4.2	1975	1.7	1976	1.7	1977	1.6	1978	2.9	1979	2.3	1980	1.3
1970	4.1	1971	4.1	1972	4.1	1973	4.1	1974	4.1	1975	1.7	1976	1.7	1977	1.6	1978	2.8	1979	2.3	1980	1.3	1981	1.3
1971	4.0	1972	4.0	1973	4.0	1974	4.0	1975	1.6	1976	1.6	1977	1.6	1978	2.7	1979	2.3	1980	1.3	1981	1.3	1982	0.9
1972	4.0	1973	4.0	1974	4.0	1975	1.6	1976	1.6	1977	1.5	1978	2.7	1979	2.2	1980	1.3	1981	1.3	1982	0.9	1983	0.9
1973	3.9	1974	3.9	1975	1.5	1976	1.5	1977	1.5	1978	2.6	1979	2.2	1980	1.2	1981	1.2	1982	0.9	1983	0.9	1984	0.7
1974	3.8	1975	1.5	1976	1.5	1977	1.5	1978	2.5	1979	2.1	1980	1.2	1981	1.2	1982	0.8	1983	0.8	1984	0.7	1985	0.7
1975	1.4	1976	1.4	1977	1.4	1978	2.5	1979	2.1	1980	1.2	1981	1.2	1982	0.8	1983	0.8	1984	0.7	1985	0.7	1986	0.7
1976	1.4	1977	1.4	1978	2.4	1979	2.0	1980	1.1	1981	1.1	1982	0.8	1983	0.8	1984	0.6	1985	0.6	1986	0.6	1987	0.6
1977	1.4	1978	2.3	1979	1.9	1980	1.1	1981	1.1	1982	0.7	1983	0.7	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6
1978	2.2	1979	1.9	1980	1.1	1981	1.1	1982	0.7	1983	0.7	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5
1979	1.8	1980	1.0	1981	1.0	1982	0.7	1983	0.7	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5
1980	1.0	1981	1.0	1982	0.6	1983	0.6	1984	0.5	1985	0.5	1986	0.5	1987	0.5	1988	0.5	1989	0.5	1990	0.5	1991	0.5
1981	0.9	1982	0.6	1983	0.6	1984	0.4	1985	0.4	1986	0.4	1987	0.4	1988	0.4	1989	0.4	1990	0.4	1991	0.4	1992	0.4
1982	0.5	1983	0.5	1984	0.4	1985	0.4	1986	0.4	1987	0.4	1988	0.4	1989	0.4	1990	0.4	1991	0.4	1992	0.4	1993	0.4

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.5.4A.

DATE: MARCH 31, 1981

TABLE 3.5.2B

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	7.1	1952	7.1	1953	7.1	1954	7.1	1955	7.1	1956	7.1	1957	7.1	1958	7.1	1959	7.1	1960	7.1	1961	7.1	1962	7.1
1952	7.0	1953	7.0	1954	7.0	1955	7.0	1956	7.0	1957	7.0	1958	7.0	1959	7.0	1960	7.0	1961	7.0	1962	7.0	1963	7.0
1953	7.0	1954	7.0	1955	7.0	1956	7.0	1957	7.0	1958	7.0	1959	7.0	1960	7.0	1961	7.0	1962	7.0	1963	7.0	1964	7.0
1954	6.9	1955	6.9	1956	6.9	1957	6.9	1958	6.9	1959	6.9	1960	6.9	1961	6.9	1962	6.9	1963	6.9	1964	6.9	1965	6.9
1955	6.8	1956	6.8	1957	6.8	1958	6.8	1959	6.8	1960	6.8	1961	6.8	1962	6.8	1963	6.8	1964	6.8	1965	6.8	1966	6.8
1956	6.7	1957	6.7	1958	6.7	1959	6.7	1960	6.7	1961	6.7	1962	6.7	1963	6.7	1964	6.7	1965	6.7	1966	6.7	1967	6.7
1957	6.6	1958	6.6	1959	6.6	1960	6.6	1961	6.6	1962	6.6	1963	6.6	1964	6.6	1965	6.6	1966	6.6	1967	6.6	1968	6.6
1958	6.5	1959	6.5	1960	6.5	1961	6.5	1962	6.5	1963	6.5	1964	6.5	1965	6.5	1966	6.5	1967	6.5	1968	6.5	1969	6.5
1959	6.4	1960	6.4	1961	6.4	1962	6.4	1963	6.4	1964	6.4	1965	6.4	1966	6.4	1967	6.4	1968	6.4	1969	6.4	1970	6.4
1960	6.3	1961	6.3	1962	6.3	1963	6.3	1964	6.3	1965	6.3	1966	6.3	1967	6.3	1968	6.3	1969	6.3	1970	6.3	1971	6.3
1961	6.1	1962	6.1	1963	6.1	1964	6.1	1965	6.1	1966	6.1	1967	6.1	1968	6.1	1969	6.1	1970	6.1	1971	6.1	1972	6.1
1962	6.0	1963	6.0	1964	6.0	1965	6.0	1966	6.0	1967	6.0	1968	6.0	1969	6.0	1970	6.0	1971	6.0	1972	6.0	1973	6.0
1963	5.9	1964	5.9	1965	5.9	1966	5.9	1967	5.9	1968	5.9	1969	5.9	1970	5.9	1971	5.9	1972	5.9	1973	5.9	1974	5.9
1964	5.7	1965	5.7	1966	5.7	1967	5.7	1968	5.7	1969	5.7	1970	5.7	1971	5.7	1972	5.7	1973	5.7	1974	5.7	1975	2.6
1965	5.6	1966	5.6	1967	5.6	1968	5.6	1969	5.6	1970	5.6	1971	5.6	1972	5.6	1973	5.6	1974	5.6	1975	2.5	1976	2.5
1966	5.4	1967	5.4	1968	5.4	1969	5.4	1970	5.4	1971	5.4	1972	5.4	1973	5.4	1974	5.4	1975	2.4	1976	2.4	1977	2.8
1967	5.2	1968	5.2	1969	5.2	1970	5.2	1971	5.2	1972	5.2	1973	5.2	1974	5.2	1975	2.3	1976	2.3	1977	2.7	1978	2.9
1968	5.1	1969	5.1	1970	5.1	1971	5.1	1972	5.1	1973	5.1	1974	5.1	1975	2.2	1976	2.2	1977	2.6	1978	2.8	1979	2.9
1969	4.9	1970	4.9	1971	4.9	1972	4.9	1973	4.9	1974	4.9	1975	2.2	1976	2.2	1977	2.5	1978	2.7	1979	2.7	1980	2.3
1970	4.8	1971	4.8	1972	4.8	1973	4.8	1974	4.8	1975	2.1	1976	2.1	1977	2.4	1978	2.6	1979	2.7	1980	2.2	1981	2.2

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	7.1	1964	7.1	1965	7.1	1966	7.1	1967	7.1	1968	7.1	1969	7.1	1970	7.1	1971	7.1	1972	7.1	1973	7.1	1974	7.1
1964	7.0	1965	7.0	1966	7.0	1967	7.0	1968	7.0	1969	7.0	1970	7.0	1971	7.0	1972	7.0	1973	7.0	1974	7.0	1975	3.2
1965	7.0	1966	7.0	1967	7.0	1968	7.0	1969	7.0	1970	7.0	1971	7.0	1972	7.0	1973	7.0	1974	7.0	1975	3.1	1976	3.1
1966	6.9	1967	6.9	1968	6.9	1969	6.9	1970	6.9	1971	6.9	1972	6.9	1973	6.9	1974	6.9	1975	3.1	1976	3.1	1977	3.8
1967	6.8	1968	6.8	1969	6.8	1970	6.8	1971	6.8	1972	6.8	1973	6.8	1974	6.8	1975	3.1	1976	3.1	1977	3.7	1978	4.0
1968	6.7	1969	6.7	1970	6.7	1971	6.7	1972	6.7	1973	6.7	1974	6.7	1975	3.0	1976	3.0	1977	3.6	1978	3.9	1979	3.9
1969	6.6	1970	6.6	1971	6.6	1972	6.6	1973	6.6	1974	6.6	1975	3.0	1976	3.0	1977	3.6	1978	3.9	1979	3.8	1980	2.9
1970	6.5	1971	6.5	1972	6.5	1973	6.5	1974	6.5	1975	2.9	1976	2.9	1977	3.5	1978	3.8	1979	3.7	1980	2.9	1981	2.9
1971	6.4	1972	6.4	1973	6.4	1974	6.4	1975	2.9	1976	2.9	1977	3.4	1978	3.7	1979	3.7	1980	2.9	1981	2.9	1982	2.9
1972	6.3	1973	6.3	1974	6.3	1975	2.8	1976	2.8	1977	3.4	1978	3.6	1979	3.6	1980	2.8	1981	2.8	1982	2.8	1983	2.8
1973	6.1	1974	6.1	1975	2.7	1976	2.7	1977	3.3	1978	3.5	1979	3.5	1980	2.8	1981	2.8	1982	2.8	1983	2.8	1984	1.8
1974	6.0	1975	2.7	1976	2.7	1977	3.2	1978	3.4	1979	3.4	1980	2.7	1981	2.7	1982	2.7	1983	2.7	1984	1.8	1985	1.8
1975	2.6	1976	2.6	1977	3.1	1978	3.3	1979	3.4	1980	2.7	1981	2.7	1982	2.7	1983	2.7	1984	1.7	1985	1.7	1986	1.7
1976	2.6	1977	3.0	1978	3.2	1979	3.3	1980	2.6	1981	2.6	1982	2.6	1983	2.6	1984	1.6	1985	1.6	1986	1.6	1987	1.6
1977	2.9	1978	3.1	1979	3.2	1980	2.5	1981	2.5	1982	2.5	1983	2.5	1984	1.6	1985	1.6	1986	1.6	1987	1.6	1988	1.6
1978	3.0	1979	3.1	1980	2.5	1981	2.5	1982	2.5	1983	2.5	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5
1979	3.0	1980	2.4	1981	2.4	1982	2.4	1983	2.4	1984	1.5	1985	1.5	1986	1.5	1987	1.5	1988	1.5	1989	1.5	1990	1.5
1980	2.3	1981	2.3	1982	2.3	1983	2.3	1984	1.4	1985	1.4	1986	1.4	1987	1.4	1988	1.4	1989	1.4	1990	1.4	1991	1.4
1981	2.3	1982	2.3	1983	2.3	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3	1991	1.3	1992	1.3
1982	2.2	1983	2.2	1984	1.3	1985	1.3	1986	1.3	1987	1.3	1988	1.3	1989	1.3	1990	1.3	1991	1.3	1992	1.3	1993	1.3

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.5.4A.

DATE: MARCH 31, 1981

TABLE 3.5.2C

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	2.2	1952	2.2	1953	2.2	1954	2.2	1955	2.2	1956	2.2	1957	2.2	1958	2.2	1959	2.2	1960	2.2	1961	2.2	1962	2.2
1952	2.2	1953	2.2	1954	2.2	1955	2.2	1956	2.2	1957	2.2	1958	2.2	1959	2.2	1960	2.2	1961	2.2	1962	2.2	1963	2.2
1953	2.1	1954	2.1	1955	2.1	1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1
1954	2.1	1955	2.1	1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1	1965	2.1
1955	2.1	1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1	1965	2.1	1966	2.1
1956	2.1	1957	2.1	1958	2.1	1959	2.1	1960	2.1	1961	2.1	1962	2.1	1963	2.1	1964	2.1	1965	2.1	1966	2.1	1967	2.1
1957	2.0	1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.0
1958	2.0	1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.0	1969	2.0
1959	2.0	1960	2.0	1961	2.0	1962	2.0	1963	2.0	1964	2.0	1965	2.0	1966	2.0	1967	2.0	1968	2.0	1969	2.0	1970	2.0
1960	1.9	1961	1.9	1962	1.9	1963	1.9	1964	1.9	1965	1.9	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	1.9	1971	1.9
1961	1.9	1962	1.9	1963	1.9	1964	1.9	1965	1.9	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	1.9	1971	1.9	1972	1.9
1962	1.9	1963	1.9	1964	1.9	1965	1.9	1966	1.9	1967	1.9	1968	1.9	1969	1.9	1970	1.9	1971	1.9	1972	1.9	1973	1.9
1963	1.8	1964	1.8	1965	1.8	1966	1.8	1967	1.8	1968	1.8	1969	1.8	1970	1.8	1971	1.8	1972	1.8	1973	1.8	1974	1.8
1964	1.8	1965	1.8	1966	1.8	1967	1.8	1968	1.8	1969	1.8	1970	1.8	1971	1.8	1972	1.8	1973	1.8	1974	1.8	1975	2.0
1965	1.7	1966	1.7	1967	1.7	1968	1.7	1969	1.7	1970	1.7	1971	1.7	1972	1.7	1973	1.7	1974	1.7	1975	2.0	1976	2.0
1966	1.7	1967	1.7	1968	1.7	1969	1.7	1970	1.7	1971	1.7	1972	1.7	1973	1.7	1974	1.7	1975	1.9	1976	1.9	1977	1.7
1967	1.6	1968	1.6	1969	1.6	1970	1.6	1971	1.6	1972	1.6	1973	1.6	1974	1.6	1975	1.9	1976	1.9	1977	1.6	1978	1.8
1968	1.6	1969	1.6	1970	1.6	1971	1.6	1972	1.6	1973	1.6	1974	1.6	1975	1.8	1976	1.8	1977	1.5	1978	1.7	1979	1.6
1969	1.5	1970	1.5	1971	1.5	1972	1.5	1973	1.5	1974	1.5	1975	1.8	1976	1.8	1977	1.4	1978	1.7	1979	1.5	1980	1.6
1970	1.5	1971	1.5	1972	1.5	1973	1.5	1974	1.5	1975	1.8	1976	1.8	1977	1.3	1978	1.6	1979	1.5	1980	1.5	1981	1.1

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	2.2	1964	2.2	1965	2.2	1966	2.2	1967	2.2	1968	2.2	1969	2.2	1970	2.2	1971	2.2	1972	2.2	1973	2.2	1974	2.2
1964	2.2	1965	2.2	1966	2.2	1967	2.2	1968	2.2	1969	2.2	1970	2.2	1971	2.2	1972	2.2	1973	2.2	1974	2.2	1975	2.3
1965	2.1	1966	2.1	1967	2.1	1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.3	1976	2.3
1966	2.1	1967	2.1	1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.3	1976	2.3	1977	2.5
1967	2.1	1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.2	1976	2.2	1977	2.4	1978	2.4
1968	2.1	1969	2.1	1970	2.1	1971	2.1	1972	2.1	1973	2.1	1974	2.1	1975	2.2	1976	2.2	1977	2.4	1978	2.4	1979	2.4
1969	2.0	1970	2.0	1971	2.0	1972	2.0	1973	2.0	1974	2.0	1975	2.2	1976	2.2	1977	2.3	1978	2.3	1979	2.3	1980	2.4
1970	2.0	1971	2.0	1972	2.0	1973	2.0	1974	2.0	1975	2.2	1976	2.2	1977	2.3	1978	2.3	1979	2.3	1980	2.3	1981	1.9
1971	2.0	1972	2.0	1973	2.0	1974	2.0	1975	2.2	1976	2.2	1977	2.2	1978	2.3	1979	2.2	1980	2.3	1981	1.9	1982	1.9
1972	1.9	1973	1.9	1974	1.9	1975	2.1	1976	2.1	1977	2.2	1978	2.2	1979	2.2	1980	2.2	1981	1.8	1982	1.8	1983	1.3
1973	1.9	1974	1.9	1975	2.1	1976	2.1	1977	2.1	1978	2.2	1979	2.1	1980	2.1	1981	1.8	1982	1.8	1983	1.3	1984	1.3
1974	1.9	1975	2.1	1976	2.1	1977	2.0	1978	2.1	1979	2.0	1980	2.1	1981	1.7	1982	1.7	1983	1.2	1984	1.2	1985	1.2
1975	2.0	1976	2.0	1977	1.9	1978	2.1	1979	2.0	1980	2.0	1981	1.6	1982	1.6	1983	1.2	1984	1.2	1985	1.2	1986	1.2
1976	2.0	1977	1.9	1978	2.0	1979	1.9	1980	1.9	1981	1.6	1982	1.6	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1
1977	1.8	1978	1.9	1979	1.8	1980	1.9	1981	1.5	1982	1.5	1983	1.1	1984	1.1	1985	1.1	1986	1.1	1987	1.1	1988	1.1
1978	1.9	1979	1.8	1980	1.8	1981	1.4	1982	1.4	1983	1.0	1984	1.0	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0
1979	1.7	1980	1.7	1981	1.3	1982	1.3	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9
1980	1.6	1981	1.3	1982	1.3	1983	0.9	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9	1991	0.9
1981	1.2	1982	1.2	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8
1982	1.1	1983	0.8	1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8	1993	0.8

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.5.4A.

DATE: MARCH 31, 1981

TABLE 3.5.3

IDLE EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1975	0.32	0.01
	1975-1976	0.07	0.0
	1977	0.09	0.0
	1978	0.14	0.0
	1979	0.12	0.0
	1980-1981	0.07	0.0
	1982-1983	0.04	0.0
	1984+	0.03	0.0
CO	Pre-1975	0.40	0.01
	1975-1976	0.25	0.01
	1977	0.28	0.01
	1978	0.30	0.01
	1979	0.32	0.01
	1980-1981	0.26	0.01
	1982-1983	0.26	0.01
	1984+	0.15	0.01
NOx	Pre-1975	0.13	0.0
	1975-1976	0.22	0.0
	1977	0.17	0.01
	1978	0.20	0.01
	1979	0.18	0.01
	1980	0.19	0.01
	1981-1982	0.14	0.01
	1983+	0.09	0.01

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.5.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.072	14400.	0.024	14400.	1800.
2	0.101	13900.	0.101	14275.	10784.
3	0.092	13400.	0.092	13775.	24809.
4	0.071	12800.	0.071	13250.	38331.
5	0.092	12300.	0.092	12675.	51284.
6	0.103	11800.	0.103	12175.	63709.
7	0.089	11200.	0.089	11650.	75631.
8	0.071	10700.	0.071	11075.	86984.
9	0.066	10200.	0.066	10575.	97809.
10	0.059	9600.	0.059	10050.	108131.
11	0.048	9100.	0.048	9475.	117884.
12	0.035	8600.	0.035	8975.	127109.
13	0.030	8000.	0.030	8450.	135831.
14	0.023	7500.	0.023	7875.	143984.
15	0.015	7000.	0.015	7375.	151609.
16	0.010	6400.	0.010	6850.	158731.
17	0.005	5900.	0.005	6275.	165284.
18	0.003	5400.	0.003	5775.	171309.
19	0.002	4900.	0.002	5275.	176833.
20+	0.015	4300.	0.015	4750.	181855.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 3.5.4B

FLEET SALES FRACTION* FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

Model Years	Sales Fraction
Pre-1975	0.0
1975	0.002
1976	0.003
1977	0.005
1978	0.009
1979	0.028
1980	0.034
1981	0.047
1982	0.075
1983	0.089
1984	0.095
1985	0.114
1986	0.138
1987	0.165
1988	0.176
1989	0.187
1990	0.197
1991+	0.200

* The estimated fraction of the light duty vehicle model year fleet which is diesel powered.

DATE: MARCH 31, 1981

TABLE 3.5.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) LDV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDDV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.024	0.114	0.003	0.073	14400.	1056.2	0.079
1984	0.101	0.095	0.010	0.257	14275.	3663.0	0.274
1983	0.092	0.089	0.008	0.219	13775.	3022.6	0.226
1982	0.071	0.075	0.005	0.142	13250.	1883.5	0.141
1981	0.092	0.047	0.004	0.115	12675.	1460.8	0.109
1980	0.103	0.034	0.003	0.093	12175.	1137.0	0.085
1979	0.089	0.028	0.002	0.067	11650.	775.4	0.058
1978	0.071	0.009	0.001	0.017	11075.	190.0	0.014
1977	0.066	0.005	0.000	0.009	10575.	93.3	0.007
1976	0.059	0.003	0.000	0.005	10050.	47.7	0.004
1975	0.048	0.002	0.000	0.003	9475.	24.2	0.002
1974	0.035	0.0	0.0	0.0	8975.	0.0	0.0
1973	0.030	0.0	0.0	0.0	8450.	0.0	0.0
1972	0.023	0.0	0.0	0.0	7875.	0.0	0.0
1971	0.015	0.0	0.0	0.0	7375.	0.0	0.0
1970	0.010	0.0	0.0	0.0	6850.	0.0	0.0
1969	0.005	0.0	0.0	0.0	6275.	0.0	0.0
1968	0.003	0.0	0.0	0.0	5775.	0.0	0.0
1967	0.002	0.0	0.0	0.0	5275.	0.0	0.0
1966-	0.015	0.0	0.0	0.0	4750.	0.0	0.0
		DAF:	0.037		TFNORM:	13353.6	

WHERE:

A = January 1 registration mix from Table 3.5.4A.
B = Fleet sales fractions from Table 3.5.4B.
D = Sales weighted fleet mileage accumulation rate from Table 3.5.4A, adjusted to January 1.
D(1) = Annual Miles(1)
D(MYI) = .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 3.5.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

* $SCF(s,sadj) = SF(s)/SF(sadj)$

$SF(s) = EXP(A + B*s + C*s^2)$

Pol	Model Years	Coefficients A	B	C
HC	All	0.90900	-0.05500	0.00044
CO	All	1.37520	-0.08800	0.00091
NOx	All	0.66800	-0.04800	0.00071

Where:
s = average speed (mph)
sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w.
[$1/sadj = (w+x)/26 + (1-w-x)/16$].

DATE: MARCH 31, 1981

TABLE 3.5.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1975	0.0	0.0	0.0	0.0	0.0	0.0
	1975-1976	0.0	0.0	0.0	0.0	0.0	0.0
	1977	0.0	0.0	0.0	0.0	0.0	0.0
	1978	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980+	0.0	0.0	0.0	0.0	0.0	0.0
CO	Pre-1975	0.0	0.0	0.0	0.0	0.0	0.0
	1975-1976	0.0	0.0	0.0	0.0	0.0	0.0
	1977	0.0	0.0	0.0	0.0	0.0	0.0
	1978	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980+	0.0	0.0	0.0	0.0	0.0	0.0
NOx	Pre-1975	0.0	0.0	0.0	0.0	0.0	0.0
	1975-1976	0.0	0.0	0.0	0.0	0.0	0.0
	1977	0.0	0.0	0.0	0.0	0.0	0.0
	1978	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980	0.0	0.0	0.0	0.0	0.0	0.0
	1981-1982	0.0	0.0	0.0	0.0	0.0	0.0
	1983+	0.0	0.0	0.0	0.0	0.0	0.0

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 3.5.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

NOTE: This table indicates diesel emissions are insensitive to temperature.

DATE: MARCH 31, 1981

TABLE 3.5.7B

NORMALIZED BAG FRACTIONS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED VEHICLES

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1975	1.209	0.071	1.073	0.056	0.703	0.064	1.000	0.061
	1975-1976	1.209	0.136	1.073	0.111	0.703	0.110	1.000	0.116
	1977	1.209	0.068	1.073	0.053	0.703	0.062	1.000	0.059
	1978	1.209	0.101	1.073	0.081	0.703	0.085	1.000	0.086
	1979	1.209	0.082	1.073	0.065	0.703	0.072	1.000	0.070
	1980+	1.209	0.090	1.073	0.072	0.703	0.077	1.000	0.077
CO	Pre-1975	1.199	0.060	0.935	0.042	0.974	0.051	1.000	0.048
	1975-1976	1.199	0.062	0.935	0.044	0.974	0.053	1.000	0.050
	1977	1.199	0.071	0.935	0.051	0.974	0.060	1.000	0.058
	1978	1.199	0.076	0.935	0.055	0.974	0.064	1.000	0.062
	1979	1.199	0.065	0.935	0.046	0.974	0.055	1.000	0.052
	1980+	1.199	0.049	0.935	0.034	0.974	0.042	1.000	0.039
NOx	Pre-1975	1.068	0.026	0.981	0.029	0.985	0.026	1.000	0.028
	1975-1976	1.068	0.015	0.981	0.018	0.985	0.015	1.000	0.017
	1977	1.068	0.053	0.981	0.054	0.985	0.050	1.000	0.053
	1978	1.068	0.030	0.981	0.032	0.985	0.029	1.000	0.031
	1979	1.068	0.040	0.981	0.042	0.985	0.039	1.000	0.041
	1980	1.068	0.040	0.981	0.042	0.985	0.038	1.000	0.040
	1981-1982	1.068	0.054	0.981	0.055	0.985	0.052	1.000	0.054
	1983+	1.068	0.067	0.981	0.068	0.985	0.064	1.000	0.067

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF

TERM1 = W *TCF(1)*(B1+D1*M)

TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)

TERM3 = X *TCF(3)*(B3+D3*M)

DENOM = B0 + D0*M

SCF = Speed correction factor for pollutant & model year

W = Fraction of VMT in the cold start mode

X = Fraction of VMT in the hot start mode

TCF(b) = Temperature correction factor for pollutant, model year; for test segment b

M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.6.1

EXHAUST EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1979	2.16	0.09	2.61
	1979	1.96	0.08	2.36
	1980-1983	1.96	0.08	2.36
	1984+	0.61	0.06	0.91
CO	Pre-1979	3.15	0.09	3.60
	1979	3.61	0.10	4.11
	1980-1983	3.47	0.09	3.92
	1984+	1.98	0.09	2.43
NOx	Pre-1979	1.75	0.06	2.05
	1979	1.77	0.06	2.07
	1980-1984	1.89	0.07	2.24
	1985+	0.71	0.05	0.96

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.2, for the emission standards.

DATE: MARCH 31, 1981

TABLE 3.6.2A

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS
HC

January 1 of Calendar Year

1978		1979		1980		1981		1982		1983		1984		1985	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1959	-	1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-
1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-
1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-
1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-
1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-
1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-
1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-
1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.0
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.9	1979	2.6
1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.8	1979	2.5	1980	2.5
1974	-	1975	-	1976	-	1977	-	1978	2.7	1979	2.4	1980	2.4	1981	2.4
1975	-	1976	-	1977	-	1978	2.5	1979	2.3	1980	2.3	1981	2.3	1982	2.3
1976	-	1977	-	1978	2.4	1979	2.2	1980	2.2	1981	2.2	1982	2.2	1983	2.2
1977	-	1978	2.3	1979	2.1	1980	2.1	1981	2.1	1982	2.1	1983	2.1	1984	0.7
1978	2.2	1979	2.0	1980	2.0	1981	2.0	1982	2.0	1983	2.0	1984	0.6	1985	0.6

January 1 of Calendar Year

1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.5
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.5	1979	3.1
1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.4	1979	3.1	1980	3.1
1974	-	1975	-	1976	-	1977	-	1978	3.4	1979	3.0	1980	3.0	1981	3.0
1975	-	1976	-	1977	-	1978	3.3	1979	3.0	1980	3.0	1981	3.0	1982	3.0
1976	-	1977	-	1978	3.2	1979	2.9	1980	2.9	1981	2.9	1982	2.9	1983	2.9
1977	-	1978	3.2	1979	2.9	1980	2.9	1981	2.9	1982	2.9	1983	2.9	1984	1.3
1978	3.1	1979	2.8	1980	2.8	1981	2.8	1982	2.8	1983	2.8	1984	1.2	1985	1.2
1979	2.7	1980	2.7	1981	2.7	1982	2.7	1983	2.7	1984	1.2	1985	1.2	1986	1.2
1980	2.6	1981	2.6	1982	2.6	1983	2.6	1984	1.1	1985	1.1	1986	1.1	1987	1.1
1981	2.5	1982	2.5	1983	2.5	1984	1.0	1985	1.0	1986	1.0	1987	1.0	1988	1.0
1982	2.4	1983	2.4	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9
1983	2.3	1984	0.9	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9
1984	0.8	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1985	0.7	1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7	1992	0.7
1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.6.4A.

DATE: MARCH 31, 1981

TABLE 3.6.2B

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS
CO

January 1 of Calendar Year

1978		1979		1980		1981		1982		1983		1984		1985	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1959	-	1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-
1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-
1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-
1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-
1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-
1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-
1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-
1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	4.0
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.9	1979	4.4
1973	-	1974	-	1975	-	1976	-	1977	-	1978	3.8	1979	4.3	1980	4.1
1974	-	1975	-	1976	-	1977	-	1978	3.7	1979	4.2	1980	4.0	1981	4.0
1975	-	1976	-	1977	-	1978	3.5	1979	4.0	1980	3.8	1981	3.8	1982	3.8
1976	-	1977	-	1978	3.4	1979	3.9	1980	3.7	1981	3.7	1982	3.7	1983	3.7
1977	-	1978	3.3	1979	3.7	1980	3.6	1981	3.6	1982	3.6	1983	3.6	1984	2.1
1978	3.2	1979	3.6	1980	3.5	1981	3.5	1982	3.5	1983	3.5	1984	2.0	1985	2.0

January 1 of Calendar Year

1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	4.5
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	4.4	1979	5.1
1973	-	1974	-	1975	-	1976	-	1977	-	1978	4.4	1979	5.0	1980	4.7
1974	-	1975	-	1976	-	1977	-	1978	4.3	1979	4.9	1980	4.7	1981	4.7
1975	-	1976	-	1977	-	1978	4.3	1979	4.9	1980	4.6	1981	4.6	1982	4.6
1976	-	1977	-	1978	4.2	1979	4.8	1980	4.6	1981	4.6	1982	4.6	1983	4.6
1977	-	1978	4.2	1979	4.7	1980	4.5	1981	4.5	1982	4.5	1983	4.5	1984	3.0
1978	4.1	1979	4.6	1980	4.4	1981	4.4	1982	4.4	1983	4.4	1984	2.9	1985	2.9
1979	4.5	1980	4.3	1981	4.3	1982	4.3	1983	4.3	1984	2.8	1985	2.8	1986	2.8
1980	4.2	1981	4.2	1982	4.2	1983	4.2	1984	2.7	1985	2.7	1986	2.7	1987	2.7
1981	4.1	1982	4.1	1983	4.1	1984	2.6	1985	2.6	1986	2.6	1987	2.6	1988	2.6
1982	4.0	1983	4.0	1984	2.5	1985	2.5	1986	2.5	1987	2.5	1988	2.5	1989	2.5
1983	3.8	1984	2.4	1985	2.4	1986	2.4	1987	2.4	1988	2.4	1989	2.4	1990	2.4
1984	2.2	1985	2.2	1986	2.2	1987	2.2	1988	2.2	1989	2.2	1990	2.2	1991	2.2
1985	2.1	1986	2.1	1987	2.1	1988	2.1	1989	2.1	1990	2.1	1991	2.1	1992	2.1
1986	2.0	1987	2.0	1988	2.0	1989	2.0	1990	2.0	1991	2.0	1992	2.0	1993	2.0

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.6.4A.

DATE: MARCH 31, 1981

TABLE 3.6.2C

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS
NOx

January 1 of Calendar Year

1978		1979		1980		1981		1982		1983		1984		1985	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1959	-	1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-
1960	-	1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-
1961	-	1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-
1962	-	1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-
1963	-	1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-
1964	-	1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-
1965	-	1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-
1966	-	1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.3
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.2	1979	2.3
1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.2	1979	2.2	1980	2.4
1974	-	1975	-	1976	-	1977	-	1978	2.1	1979	2.1	1980	2.3	1981	2.3
1975	-	1976	-	1977	-	1978	2.0	1979	2.0	1980	2.2	1981	2.2	1982	2.2
1976	-	1977	-	1978	1.9	1979	1.9	1980	2.1	1981	2.1	1982	2.1	1983	2.1
1977	-	1978	1.8	1979	1.8	1980	2.0	1981	2.0	1982	2.0	1983	2.0	1984	2.0
1978	1.8	1979	1.8	1980	1.9	1981	1.9	1982	1.9	1983	1.9	1984	1.9	1985	0.7

January 1 of Calendar Year

1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1967	-	1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-
1968	-	1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-
1969	-	1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-
1970	-	1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-
1971	-	1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.6
1972	-	1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.6	1979	2.6
1973	-	1974	-	1975	-	1976	-	1977	-	1978	2.6	1979	2.6	1980	2.9
1974	-	1975	-	1976	-	1977	-	1978	2.5	1979	2.6	1980	2.8	1981	2.8
1975	-	1976	-	1977	-	1978	2.5	1979	2.5	1980	2.8	1981	2.8	1982	2.8
1976	-	1977	-	1978	2.5	1979	2.5	1980	2.7	1981	2.7	1982	2.7	1983	2.7
1977	-	1978	2.4	1979	2.4	1980	2.7	1981	2.7	1982	2.7	1983	2.7	1984	2.7
1978	2.4	1979	2.4	1980	2.6	1981	2.6	1982	2.6	1983	2.6	1984	2.6	1985	1.2
1979	2.3	1980	2.5	1981	2.5	1982	2.5	1983	2.5	1984	2.5	1985	1.2	1986	1.2
1980	2.5	1981	2.5	1982	2.5	1983	2.5	1984	2.5	1985	1.1	1986	1.1	1987	1.1
1981	2.4	1982	2.4	1983	2.4	1984	2.4	1985	1.1	1986	1.1	1987	1.1	1988	1.1
1982	2.3	1983	2.3	1984	2.3	1985	1.0	1986	1.0	1987	1.0	1988	1.0	1989	1.0
1983	2.2	1984	2.2	1985	0.9	1986	0.9	1987	0.9	1988	0.9	1989	0.9	1990	0.9
1984	2.1	1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8
1985	0.8	1986	0.8	1987	0.8	1988	0.8	1989	0.8	1990	0.8	1991	0.8	1992	0.8
1986	0.7	1987	0.7	1988	0.7	1989	0.7	1990	0.7	1991	0.7	1992	0.7	1993	0.7

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.6.4A.

DATE: MARCH 31, 1981

TABLE 3.6.3

IDLE EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1979	0.18	0.01
	1979	0.23	0.01
	1980-1983	0.23	0.01
	1984+	0.07	0.01
CO	Pre-1979	0.53	0.02
	1979	0.56	0.02
	1980-1983	0.54	0.01
	1984+	0.31	0.01
NOx	Pre-1979	0.19	0.01
	1979	0.32	0.01
	1980-1984	0.34	0.01
	1985+	0.13	0.01

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.6.4A

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per truck *	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.097	15700.	0.032	15700.	1962.
2	0.094	15100.	0.094	15550.	11756.
3	0.085	14600.	0.085	14975.	27009.
4	0.061	14000.	0.061	14450.	41731.
5	0.091	13000.	0.091	13750.	55869.
6	0.099	12100.	0.099	12775.	69122.
7	0.076	11000.	0.076	11825.	81441.
8	0.060	9700.	0.060	10675.	92709.
9	0.044	9300.	0.044	9600.	102762.
10	0.048	7400.	0.048	8825.	112115.
11	0.046	6800.	0.046	7250.	120031.
12	0.033	6100.	0.033	6625.	126978.
13	0.035	5500.	0.035	5950.	133256.
14	0.033	5000.	0.033	5375.	138909.
15	0.026	4600.	0.026	4900.	144037.
16	0.021	4200.	0.021	4500.	148737.
17	0.015	3800.	0.015	4100.	153037.
18	0.011	3100.	0.011	3625.	156927.
19	0.010	3100.	0.010	3100.	160224.
20+	0.013	3100.	0.013	3100.	163324.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 3.6.4B

FLEET SALES FRACTION* FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

Model Years	Sales Fraction
Pre-1978	0.0
1978	0.009
1979	0.028
1980	0.034
1981	0.047
1982	0.075
1983	0.089
1984	0.095
1985	0.114
1986	0.138
1987	0.165
1988	0.176
1989	0.187
1990	0.197
1991+	0.200

* The estimated fraction of the light duty truck model year fleet which is diesel powered.

DATE: MARCH 31, 1981

TABLE 3.6.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS
JANUARY 1, 1985

Model Years	(A) LDT1 Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) LDDT Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.032	0.114	0.004	0.105	15700.	1641.8	0.113
1984	0.094	0.095	0.009	0.255	15550.	3968.6	0.273
1983	0.085	0.089	0.008	0.216	14975.	3239.5	0.223
1982	0.061	0.075	0.005	0.131	14450.	1888.6	0.130
1981	0.091	0.047	0.004	0.121	13750.	1670.0	0.115
1980	0.099	0.034	0.003	0.096	12775.	1226.2	0.084
1979	0.076	0.028	0.002	0.060	11825.	714.4	0.049
1978	0.060	0.009	0.001	0.015	10675.	163.6	0.011
1977	0.044	0.0	0.0	0.0	9600.	0.0	0.0
1976	0.048	0.0	0.0	0.0	8825.	0.0	0.0
1975	0.046	0.0	0.0	0.0	7250.	0.0	0.0
1974	0.033	0.0	0.0	0.0	6625.	0.0	0.0
1973	0.035	0.0	0.0	0.0	5950.	0.0	0.0
1972	0.033	0.0	0.0	0.0	5375.	0.0	0.0
1971	0.026	0.0	0.0	0.0	4900.	0.0	0.0
1970	0.021	0.0	0.0	0.0	4500.	0.0	0.0
1969	0.015	0.0	0.0	0.0	4100.	0.0	0.0
1968	0.011	0.0	0.0	0.0	3625.	0.0	0.0
1967	0.010	0.0	0.0	0.0	3100.	0.0	0.0
1966-	0.013	0.0	0.0	0.0	3100.	0.0	0.0
			DAF: 0.035		TFNORM:	14512.8	

WHERE:

A = January 1 registration mix from Table 3.6.4A.
B = Fleet sales fractions from Table 3.6.4B.
D = Sales weighted fleet mileage accumulation rate from Table 3.6.4A, adjusted to January 1.
D(1) = Annual Miles(1)
D(MYI) = .25*(Annual Miles(MYI)) + .75*(Annual Miles(MYI-1)) , MYI=2,...,20+

NOTE: In general, the travel weighting fractions will change for every calendar year since the sales fraction (column B) changes for almost every model year.

DATE: MARCH 31, 1981

TABLE 3.6.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

$$* \; SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2)$$

Pol	Model Years	Coefficients A	B	C
HC	All	0.90900	-0.05500	0.00044
CO	All	1.37520	-0.08800	0.00091
NOx	All	0.66800	-0.04800	0.00071

Where:
s = average speed (mph)
sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w.
[1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 3.6.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1		Test segment 2		Test segment 3	
		TC Low	TC High	TC Low	TC High	TC Low	TC High
HC	Pre-1979	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980-1982	0.0	0.0	0.0	0.0	0.0	0.0
	1983+	0.0	0.0	0.0	0.0	0.0	0.0
CO	Pre-1979	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980-1982	0.0	0.0	0.0	0.0	0.0	0.0
	1983+	0.0	0.0	0.0	0.0	0.0	0.0
NOx	Pre-1979	0.0	0.0	0.0	0.0	0.0	0.0
	1979	0.0	0.0	0.0	0.0	0.0	0.0
	1980-1984	0.0	0.0	0.0	0.0	0.0	0.0
	1985+	0.0	0.0	0.0	0.0	0.0	0.0

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 3.6.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

NOTE: This table indicates diesel emissions are insensitive to temperature.

DATE: MARCH 31, 1981

TABLE 3.6.7B

NORMALIZED BAG FRACTIONS FOR
HIGH ALTITUDE 49-STATE
LIGHT DUTY DIESEL POWERED TRUCKS

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1979	1.209	0.112	1.073	0.091	0.703	0.093	1.000	0.096
	1979	1.209	0.110	1.073	0.089	0.703	0.092	1.000	0.094
	1980-1982	1.209	0.110	1.073	0.089	0.703	0.092	1.000	0.094
	1983+	1.209	0.115	1.073	0.093	0.703	0.095	1.000	0.098
CO	Pre-1979	1.199	0.062	0.935	0.044	0.974	0.053	1.000	0.050
	1979	1.199	0.060	0.935	0.043	0.974	0.051	1.000	0.049
	1980-1982	1.199	0.057	0.935	0.040	0.974	0.048	1.000	0.046
	1983+	1.199	0.057	0.935	0.040	0.974	0.048	1.000	0.046
NOx	Pre-1979	1.068	0.033	0.981	0.036	0.985	0.032	1.000	0.034
	1979	1.068	0.033	0.981	0.035	0.985	0.032	1.000	0.034
	1980-1984	1.068	0.036	0.981	0.038	0.985	0.035	1.000	0.037
	1985+	1.068	0.071	0.981	0.072	0.985	0.068	1.000	0.071

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.7.1

EXHAUST EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1985	8.03	0.04	8.23
	1985+	6.10	0.04	6.30
CO	Pre-1985	19.09	0.10	19.59
	1985+	19.09	0.10	19.59
NOx	Pre-1985	22.90	0.12	23.50
	1985+	5.43	0.07	5.78

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.4, for the emission standards.

DATE: MARCH 31, 1981

TABLE 3.7.2A

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	10.9	1952	10.9	1953	10.9	1954	10.9	1955	10.9	1956	10.9	1957	10.9	1958	10.9	1959	10.9	1960	10.9	1961	10.9	1962	10.9
1952	10.8	1953	10.8	1954	10.8	1955	10.8	1956	10.8	1957	10.8	1958	10.8	1959	10.8	1960	10.8	1961	10.8	1962	10.8	1963	10.8
1953	10.7	1954	10.7	1955	10.7	1956	10.7	1957	10.7	1958	10.7	1959	10.7	1960	10.7	1961	10.7	1962	10.7	1963	10.7	1964	10.7
1954	10.6	1955	10.6	1956	10.6	1957	10.6	1958	10.6	1959	10.6	1960	10.6	1961	10.6	1962	10.6	1963	10.6	1964	10.6	1965	10.6
1955	10.5	1956	10.5	1957	10.5	1958	10.5	1959	10.5	1960	10.5	1961	10.5	1962	10.5	1963	10.5	1964	10.5	1965	10.5	1966	10.5
1956	10.4	1957	10.4	1958	10.4	1959	10.4	1960	10.4	1961	10.4	1962	10.4	1963	10.4	1964	10.4	1965	10.4	1966	10.4	1967	10.4
1957	10.3	1958	10.3	1959	10.3	1960	10.3	1961	10.3	1962	10.3	1963	10.3	1964	10.3	1965	10.3	1966	10.3	1967	10.3	1968	10.3
1958	10.2	1959	10.2	1960	10.2	1961	10.2	1962	10.2	1963	10.2	1964	10.2	1965	10.2	1966	10.2	1967	10.2	1968	10.2	1969	10.2
1959	10.0	1960	10.0	1961	10.0	1962	10.0	1963	10.0	1964	10.0	1965	10.0	1966	10.0	1967	10.0	1968	10.0	1969	10.0	1970	10.0
1960	9.9	1961	9.9	1962	9.9	1963	9.9	1964	9.9	1965	9.9	1966	9.9	1967	9.9	1968	9.9	1969	9.9	1970	9.9	1971	9.9
1961	9.8	1962	9.8	1963	9.8	1964	9.8	1965	9.8	1966	9.8	1967	9.8	1968	9.8	1969	9.8	1970	9.8	1971	9.8	1972	9.8
1962	9.6	1963	9.6	1964	9.6	1965	9.6	1966	9.6	1967	9.6	1968	9.6	1969	9.6	1970	9.6	1971	9.6	1972	9.6	1973	9.6
1963	9.5	1964	9.5	1965	9.5	1966	9.5	1967	9.5	1968	9.5	1969	9.5	1970	9.5	1971	9.5	1972	9.5	1973	9.5	1974	9.5
1964	9.3	1965	9.3	1966	9.3	1967	9.3	1968	9.3	1969	9.3	1970	9.3	1971	9.3	1972	9.3	1973	9.3	1974	9.3	1975	9.3
1965	9.1	1966	9.1	1967	9.1	1968	9.1	1969	9.1	1970	9.1	1971	9.1	1972	9.1	1973	9.1	1974	9.1	1975	9.1	1976	9.1
1966	8.9	1967	8.9	1968	8.9	1969	8.9	1970	8.9	1971	8.9	1972	8.9	1973	8.9	1974	8.9	1975	8.9	1976	8.9	1977	8.9
1967	8.7	1968	8.7	1969	8.7	1970	8.7	1971	8.7	1972	8.7	1973	8.7	1974	8.7	1975	8.7	1976	8.7	1977	8.7	1978	8.7
1968	8.4	1969	8.4	1970	8.4	1971	8.4	1972	8.4	1973	8.4	1974	8.4	1975	8.4	1976	8.4	1977	8.4	1978	8.4	1979	8.4
1969	8.2	1970	8.2	1971	8.2	1972	8.2	1973	8.2	1974	8.2	1975	8.2	1976	8.2	1977	8.2	1978	8.2	1979	8.2	1980	8.2
1970	8.0	1971	8.0	1972	8.0	1973	8.0	1974	8.0	1975	8.0	1976	8.0	1977	8.0	1978	8.0	1979	8.0	1980	8.0	1981	8.0

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	10.9	1964	10.9	1965	10.9	1966	10.9	1967	10.9	1968	10.9	1969	10.9	1970	10.9	1971	10.9	1972	10.9	1973	10.9	1974	10.9
1964	10.8	1965	10.8	1966	10.8	1967	10.8	1968	10.8	1969	10.8	1970	10.8	1971	10.8	1972	10.8	1973	10.8	1974	10.8	1975	10.8
1965	10.7	1966	10.7	1967	10.7	1968	10.7	1969	10.7	1970	10.7	1971	10.7	1972	10.7	1973	10.7	1974	10.7	1975	10.7	1976	10.7
1966	10.6	1967	10.6	1968	10.6	1969	10.6	1970	10.6	1971	10.6	1972	10.6	1973	10.6	1974	10.6	1975	10.6	1976	10.6	1977	10.6
1967	10.5	1968	10.5	1969	10.5	1970	10.5	1971	10.5	1972	10.5	1973	10.5	1974	10.5	1975	10.5	1976	10.5	1977	10.5	1978	10.5
1968	10.4	1969	10.4	1970	10.4	1971	10.4	1972	10.4	1973	10.4	1974	10.4	1975	10.4	1976	10.4	1977	10.4	1978	10.4	1979	10.4
1969	10.3	1970	10.3	1971	10.3	1972	10.3	1973	10.3	1974	10.3	1975	10.3	1976	10.3	1977	10.3	1978	10.3	1979	10.3	1980	10.3
1970	10.2	1971	10.2	1972	10.2	1973	10.2	1974	10.2	1975	10.2	1976	10.2	1977	10.2	1978	10.2	1979	10.2	1980	10.2	1981	10.2
1971	10.0	1972	10.0	1973	10.0	1974	10.0	1975	10.0	1976	10.0	1977	10.0	1978	10.0	1979	10.0	1980	10.0	1981	10.0	1982	10.0
1972	9.9	1973	9.9	1974	9.9	1975	9.9	1976	9.9	1977	9.9	1978	9.9	1979	9.9	1980	9.9	1981	9.9	1982	9.9	1983	9.9
1973	9.8	1974	9.8	1975	9.8	1976	9.8	1977	9.8	1978	9.8	1979	9.8	1980	9.8	1981	9.8	1982	9.8	1983	9.8	1984	9.8
1974	9.6	1975	9.6	1976	9.6	1977	9.6	1978	9.6	1979	9.6	1980	9.6	1981	9.6	1982	9.6	1983	9.6	1984	9.6	1985	7.7
1975	9.5	1976	9.5	1977	9.5	1978	9.5	1979	9.5	1980	9.5	1981	9.5	1982	9.5	1983	9.5	1984	9.5	1985	7.6	1986	7.6
1976	9.3	1977	9.3	1978	9.3	1979	9.3	1980	9.3	1981	9.3	1982	9.3	1983	9.3	1984	9.3	1985	7.4	1986	7.4	1987	7.4
1977	9.1	1978	9.1	1979	9.1	1980	9.1	1981	9.1	1982	9.1	1983	9.1	1984	9.1	1985	7.2	1986	7.2	1987	7.2	1988	7.2
1978	8.9	1979	8.9	1980	8.9	1981	8.9	1982	8.9	1983	8.9	1984	8.9	1985	7.0	1986	7.0	1987	7.0	1988	7.0	1989	7.0
1979	8.7	1980	8.7	1981	8.7	1982	8.7	1983	8.7	1984	8.7	1985	6.8	1986	6.8	1987	6.8	1988	6.8	1989	6.8	1990	6.8
1980	8.4	1981	8.4	1982	8.4	1983	8.4	1984	8.4	1985	6.5	1986	6.5	1987	6.5	1988	6.5	1989	6.5	1990	6.5	1991	6.5
1981	8.2	1982	8.2	1983	8.2	1984	8.2	1985	6.2	1986	6.2	1987	6.2	1988	6.2	1989	6.2	1990	6.2	1991	6.2	1992	6.2
1982	8.0	1983	8.0	1984	8.0	1985	6.1	1986	6.1	1987	6.1	1988	6.1	1989	6.1	1990	6.1	1991	6.1	1992	6.1	1993	6.1

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 3.7.4.

DATE: MARCH 31, 1981

TABLE 3.7.2B

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	26.2	1952	26.2	1953	26.2	1954	26.2	1955	26.2	1956	26.2	1957	26.2	1958	26.2	1959	26.2	1960	26.2	1961	26.2	1962	26.2
1952	26.0	1953	26.0	1954	26.0	1955	26.0	1956	26.0	1957	26.0	1958	26.0	1959	26.0	1960	26.0	1961	26.0	1962	26.0	1963	26.0
1953	25.8	1954	25.8	1955	25.8	1956	25.8	1957	25.8	1958	25.8	1959	25.8	1960	25.8	1961	25.8	1962	25.8	1963	25.8	1964	25.8
1954	25.6	1955	25.6	1956	25.6	1957	25.6	1958	25.6	1959	25.6	1960	25.6	1961	25.6	1962	25.6	1963	25.6	1964	25.6	1965	25.6
1955	25.3	1956	25.3	1957	25.3	1958	25.3	1959	25.3	1960	25.3	1961	25.3	1962	25.3	1963	25.3	1964	25.3	1965	25.3	1966	25.3
1956	25.1	1957	25.1	1958	25.1	1959	25.1	1960	25.1	1961	25.1	1962	25.1	1963	25.1	1964	25.1	1965	25.1	1966	25.1	1967	25.1
1957	24.8	1958	24.8	1959	24.8	1960	24.8	1961	24.8	1962	24.8	1963	24.8	1964	24.8	1965	24.8	1966	24.8	1967	24.8	1968	24.8
1958	24.4	1959	24.4	1960	24.4	1961	24.4	1962	24.4	1963	24.4	1964	24.4	1965	24.4	1966	24.4	1967	24.4	1968	24.4	1969	24.4
1959	24.1	1960	24.1	1961	24.1	1962	24.1	1963	24.1	1964	24.1	1965	24.1	1966	24.1	1967	24.1	1968	24.1	1969	24.1	1970	24.1
1960	23.8	1961	23.8	1962	23.8	1963	23.8	1964	23.8	1965	23.8	1966	23.8	1967	23.8	1968	23.8	1969	23.8	1970	23.8	1971	23.8
1961	23.5	1962	23.5	1963	23.5	1964	23.5	1965	23.5	1966	23.5	1967	23.5	1968	23.5	1969	23.5	1970	23.5	1971	23.5	1972	23.5
1962	23.1	1963	23.1	1964	23.1	1965	23.1	1966	23.1	1967	23.1	1968	23.1	1969	23.1	1970	23.1	1971	23.1	1972	23.1	1973	23.1
1963	22.7	1964	22.7	1965	22.7	1966	22.7	1967	22.7	1968	22.7	1969	22.7	1970	22.7	1971	22.7	1972	22.7	1973	22.7	1974	22.7
1964	22.3	1965	22.3	1966	22.3	1967	22.3	1968	22.3	1969	22.3	1970	22.3	1971	22.3	1972	22.3	1973	22.3	1974	22.3	1975	22.3
1965	21.9	1966	21.9	1967	21.9	1968	21.9	1969	21.9	1970	21.9	1971	21.9	1972	21.9	1973	21.9	1974	21.9	1975	21.9	1976	21.9
1966	21.3	1967	21.3	1968	21.3	1969	21.3	1970	21.3	1971	21.3	1972	21.3	1973	21.3	1974	21.3	1975	21.3	1976	21.3	1977	21.3
1967	20.8	1968	20.8	1969	20.8	1970	20.8	1971	20.8	1972	20.8	1973	20.8	1974	20.8	1975	20.8	1976	20.8	1977	20.8	1978	20.8
1968	20.1	1969	20.1	1970	20.1	1971	20.1	1972	20.1	1973	20.1	1974	20.1	1975	20.1	1976	20.1	1977	20.1	1978	20.1	1979	20.1
1969	19.4	1970	19.4	1971	19.4	1972	19.4	1973	19.4	1974	19.4	1975	19.4	1976	19.4	1977	19.4	1978	19.4	1979	19.4	1980	19.4
1970	19.1	1971	19.1	1972	19.1	1973	19.1	1974	19.1	1975	19.1	1976	19.1	1977	19.1	1978	19.1	1979	19.1	1980	19.1	1981	19.1

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	26.2	1964	26.2	1965	26.2	1966	26.2	1967	26.2	1968	26.2	1969	26.2	1970	26.2	1971	26.2	1972	26.2	1973	26.2	1974	26.2
1964	26.0	1965	26.0	1966	26.0	1967	26.0	1968	26.0	1969	26.0	1970	26.0	1971	26.0	1972	26.0	1973	26.0	1974	26.0	1975	26.0
1965	25.8	1966	25.8	1967	25.8	1968	25.8	1969	25.8	1970	25.8	1971	25.8	1972	25.8	1973	25.8	1974	25.8	1975	25.8	1976	25.8
1966	25.6	1967	25.6	1968	25.6	1969	25.6	1970	25.6	1971	25.6	1972	25.6	1973	25.6	1974	25.6	1975	25.6	1976	25.6	1977	25.6
1967	25.3	1968	25.3	1969	25.3	1970	25.3	1971	25.3	1972	25.3	1973	25.3	1974	25.3	1975	25.3	1976	25.3	1977	25.3	1978	25.3
1968	25.1	1969	25.1	1970	25.1	1971	25.1	1972	25.1	1973	25.1	1974	25.1	1975	25.1	1976	25.1	1977	25.1	1978	25.1	1979	25.1
1969	24.8	1970	24.8	1971	24.8	1972	24.8	1973	24.8	1974	24.8	1975	24.8	1976	24.8	1977	24.8	1978	24.8	1979	24.8	1980	24.8
1970	24.4	1971	24.4	1972	24.4	1973	24.4	1974	24.4	1975	24.4	1976	24.4	1977	24.4	1978	24.4	1979	24.4	1980	24.4	1981	24.4
1971	24.1	1972	24.1	1973	24.1	1974	24.1	1975	24.1	1976	24.1	1977	24.1	1978	24.1	1979	24.1	1980	24.1	1981	24.1	1982	24.1
1972	23.8	1973	23.8	1974	23.8	1975	23.8	1976	23.8	1977	23.8	1978	23.8	1979	23.8	1980	23.8	1981	23.8	1982	23.8	1983	23.8
1973	23.5	1974	23.5	1975	23.5	1976	23.5	1977	23.5	1978	23.5	1979	23.5	1980	23.5	1981	23.5	1982	23.5	1983	23.5	1984	23.5
1974	23.1	1975	23.1	1976	23.1	1977	23.1	1978	23.1	1979	23.1	1980	23.1	1981	23.1	1982	23.1	1983	23.1	1984	23.1	1985	23.1
1975	22.7	1976	22.7	1977	22.7	1978	22.7	1979	22.7	1980	22.7	1981	22.7	1982	22.7	1983	22.7	1984	22.7	1985	22.7	1986	22.7
1976	22.3	1977	22.3	1978	22.3	1979	22.3	1980	22.3	1981	22.3	1982	22.3	1983	22.3	1984	22.3	1985	22.3	1986	22.3	1987	22.3
1977	21.9	1978	21.9	1979	21.9	1980	21.9	1981	21.9	1982	21.9	1983	21.9	1984	21.9	1985	21.9	1986	21.9	1987	21.9	1988	21.9
1978	21.3	1979	21.3	1980	21.3	1981	21.3	1982	21.3	1983	21.3	1984	21.3	1985	21.3	1986	21.3	1987	21.3	1988	21.3	1989	21.3
1979	20.8	1980	20.8	1981	20.8	1982	20.8	1983	20.8	1984	20.8	1985	20.8	1986	20.8	1987	20.8	1988	20.8	1989	20.8	1990	20.8
1980	20.1	1981	20.1	1982	20.1	1983	20.1	1984	20.1	1985	20.1	1986	20.1	1987	20.1	1988	20.1	1989	20.1	1990	20.1	1991	20.1
1981	19.4	1982	19.4	1983	19.4	1984	19.4	1985	19.4	1986	19.4	1987	19.4	1988	19.4	1989	19.4	1990	19.4	1991	19.4	1992	19.4
1982	19.1	1983	19.1	1984	19.1	1985	19.1	1986	19.1	1987	19.1	1988	19.1	1989	19.1	1990	19.1	1991	19.1	1992	19.1	1993	19.1

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 3.7.4.

DATE: MARCH 31, 1981

TABLE 3.7.2C

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	31.4	1952	31.4	1953	31.4	1954	31.4	1955	31.4	1956	31.4	1957	31.4	1958	31.4	1959	31.4	1960	31.4	1961	31.4	1962	31.4
1952	31.2	1953	31.2	1954	31.2	1955	31.2	1956	31.2	1957	31.2	1958	31.2	1959	31.2	1960	31.2	1961	31.2	1962	31.2	1963	31.2
1953	31.0	1954	31.0	1955	31.0	1956	31.0	1957	31.0	1958	31.0	1959	31.0	1960	31.0	1961	31.0	1962	31.0	1963	31.0	1964	31.0
1954	30.7	1955	30.7	1956	30.7	1957	30.7	1958	30.7	1959	30.7	1960	30.7	1961	30.7	1962	30.7	1963	30.7	1964	30.7	1965	30.7
1955	30.4	1956	30.4	1957	30.4	1958	30.4	1959	30.4	1960	30.4	1961	30.4	1962	30.4	1963	30.4	1964	30.4	1965	30.4	1966	30.4
1956	30.1	1957	30.1	1958	30.1	1959	30.1	1960	30.1	1961	30.1	1962	30.1	1963	30.1	1964	30.1	1965	30.1	1966	30.1	1967	30.1
1957	29.7	1958	29.7	1959	29.7	1960	29.7	1961	29.7	1962	29.7	1963	29.7	1964	29.7	1965	29.7	1966	29.7	1967	29.7	1968	29.7
1958	29.3	1959	29.3	1960	29.3	1961	29.3	1962	29.3	1963	29.3	1964	29.3	1965	29.3	1966	29.3	1967	29.3	1968	29.3	1969	29.3
1959	28.9	1960	28.9	1961	28.9	1962	28.9	1963	28.9	1964	28.9	1965	28.9	1966	28.9	1967	28.9	1968	28.9	1969	28.9	1970	28.9
1960	28.5	1961	28.5	1962	28.5	1963	28.5	1964	28.5	1965	28.5	1966	28.5	1967	28.5	1968	28.5	1969	28.5	1970	28.5	1971	28.5
1961	28.1	1962	28.1	1963	28.1	1964	28.1	1965	28.1	1966	28.1	1967	28.1	1968	28.1	1969	28.1	1970	28.1	1971	28.1	1972	28.1
1962	27.7	1963	27.7	1964	27.7	1965	27.7	1966	27.7	1967	27.7	1968	27.7	1969	27.7	1970	27.7	1971	27.7	1972	27.7	1973	27.7
1963	27.3	1964	27.3	1965	27.3	1966	27.3	1967	27.3	1968	27.3	1969	27.3	1970	27.3	1971	27.3	1972	27.3	1973	27.3	1974	27.3
1964	26.8	1965	26.8	1966	26.8	1967	26.8	1968	26.8	1969	26.8	1970	26.8	1971	26.8	1972	26.8	1973	26.8	1974	26.8	1975	26.8
1965	26.2	1966	26.2	1967	26.2	1968	26.2	1969	26.2	1970	26.2	1971	26.2	1972	26.2	1973	26.2	1974	26.2	1975	26.2	1976	26.2
1966	25.6	1967	25.6	1968	25.6	1969	25.6	1970	25.6	1971	25.6	1972	25.6	1973	25.6	1974	25.6	1975	25.6	1976	25.6	1977	25.6
1967	24.9	1968	24.9	1969	24.9	1970	24.9	1971	24.9	1972	24.9	1973	24.9	1974	24.9	1975	24.9	1976	24.9	1977	24.9	1978	24.9
1968	24.1	1969	24.1	1970	24.1	1971	24.1	1972	24.1	1973	24.1	1974	24.1	1975	24.1	1976	24.1	1977	24.1	1978	24.1	1979	24.1
1969	23.3	1970	23.3	1971	23.3	1972	23.3	1973	23.3	1974	23.3	1975	23.3	1976	23.3	1977	23.3	1978	23.3	1979	23.3	1980	23.3
1970	22.9	1971	22.9	1972	22.9	1973	22.9	1974	22.9	1975	22.9	1976	22.9	1977	22.9	1978	22.9	1979	22.9	1980	22.9	1981	22.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	31.4	1964	31.4	1965	31.4	1966	31.4	1967	31.4	1968	31.4	1969	31.4	1970	31.4	1971	31.4	1972	31.4	1973	31.4	1974	31.4
1964	31.2	1965	31.2	1966	31.2	1967	31.2	1968	31.2	1969	31.2	1970	31.2	1971	31.2	1972	31.2	1973	31.2	1974	31.2	1975	31.2
1965	31.0	1966	31.0	1967	31.0	1968	31.0	1969	31.0	1970	31.0	1971	31.0	1972	31.0	1973	31.0	1974	31.0	1975	31.0	1976	31.0
1966	30.7	1967	30.7	1968	30.7	1969	30.7	1970	30.7	1971	30.7	1972	30.7	1973	30.7	1974	30.7	1975	30.7	1976	30.7	1977	30.7
1967	30.4	1968	30.4	1969	30.4	1970	30.4	1971	30.4	1972	30.4	1973	30.4	1974	30.4	1975	30.4	1976	30.4	1977	30.4	1978	30.4
1968	30.1	1969	30.1	1970	30.1	1971	30.1	1972	30.1	1973	30.1	1974	30.1	1975	30.1	1976	30.1	1977	30.1	1978	30.1	1979	30.1
1969	29.7	1970	29.7	1971	29.7	1972	29.7	1973	29.7	1974	29.7	1975	29.7	1976	29.7	1977	29.7	1978	29.7	1979	29.7	1980	29.7
1970	29.3	1971	29.3	1972	29.3	1973	29.3	1974	29.3	1975	29.3	1976	29.3	1977	29.3	1978	29.3	1979	29.3	1980	29.3	1981	29.3
1971	28.9	1972	28.9	1973	28.9	1974	28.9	1975	28.9	1976	28.9	1977	28.9	1978	28.9	1979	28.9	1980	28.9	1981	28.9	1982	28.9
1972	28.5	1973	28.5	1974	28.5	1975	28.5	1976	28.5	1977	28.5	1978	28.5	1979	28.5	1980	28.5	1981	28.5	1982	28.5	1983	28.5
1973	28.1	1974	28.1	1975	28.1	1976	28.1	1977	28.1	1978	28.1	1979	28.1	1980	28.1	1981	28.1	1982	28.1	1983	28.1	1984	28.1
1974	27.7	1975	27.7	1976	27.7	1977	27.7	1978	27.7	1979	27.7	1980	27.7	1981	27.7	1982	27.7	1983	27.7	1984	27.7	1985	8.2
1975	27.3	1976	27.3	1977	27.3	1978	27.3	1979	27.3	1980	27.3	1981	27.3	1982	27.3	1983	27.3	1984	27.3	1985	8.0	1986	8.0
1976	26.8	1977	26.8	1978	26.8	1979	26.8	1980	26.8	1981	26.8	1982	26.8	1983	26.8	1984	26.8	1985	7.7	1986	7.7	1987	7.7
1977	26.2	1978	26.2	1979	26.2	1980	26.2	1981	26.2	1982	26.2	1983	26.2	1984	26.2	1985	7.4	1986	7.4	1987	7.4	1988	7.4
1978	25.6	1979	25.6	1980	25.6	1981	25.6	1982	25.6	1983	25.6	1984	25.6	1985	7.0	1986	7.0	1987	7.0	1988	7.0	1989	7.0
1979	24.9	1980	24.9	1981	24.9	1982	24.9	1983	24.9	1984	24.9	1985	6.6	1986	6.6	1987	6.6	1988	6.6	1989	6.6	1990	6.6
1980	24.1	1981	24.1	1982	24.1	1983	24.1	1984	24.1	1985	6.2	1986	6.2	1987	6.2	1988	6.2	1989	6.2	1990	6.2	1991	6.2
1981	23.3	1982	23.3	1983	23.3	1984	23.3	1985	5.7	1986	5.7	1987	5.7	1988	5.7	1989	5.7	1990	5.7	1991	5.7	1992	5.7
1982	22.9	1983	22.9	1984	22.9	1985	5.4	1986	5.4	1987	5.4	1988	5.4	1989	5.4	1990	5.4	1991	5.4	1992	5.4	1993	5.4

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year.
These emission levels are calculated for the basic test conditions: 20.0 MPH, 68<=TEMP<=86 Degrees F.
Emissions are based on the January 1 mileage accumulation figures given in Table 3.7.4.

DATE: MARCH 31, 1981

TABLE 3.7.3

IDLE EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1985	0.83	0.0
	1985+	0.62	0.0
CO	Pre-1985	1.17	0.01
	1985+	1.17	0.01
NOx	Pre-1985	0.92	0.0
	1985+	0.22	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.7.4

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.177	70400.	0.0	0.	0.
2	0.142	66900.	0.142	70400.	35200.
3	0.085	60600.	0.085	66900.	103850.
4	0.054	54200.	0.054	60600.	167600.
5	0.098	47900.	0.098	54200.	225000.
6	0.093	43700.	0.093	47900.	276050.
7	0.072	39400.	0.072	43700.	321850.
8	0.052	36600.	0.052	39400.	363399.
9	0.042	34500.	0.042	36600.	401399.
10	0.042	33100.	0.042	34500.	436949.
11	0.031	32400.	0.031	33100.	470749.
12	0.024	31700.	0.024	32400.	503499.
13	0.025	31000.	0.025	31700.	535549.
14	0.019	29600.	0.019	31000.	566899.
15	0.013	27500.	0.013	29600.	597199.
16	0.010	24600.	0.010	27500.	625749.
17	0.007	20400.	0.007	24600.	651799.
18	0.004	17600.	0.004	20400.	674299.
19	0.004	17600.	0.004	17600.	693299.
20+	0.007	17600.	0.007	17600.	710898.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 3.7.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES
JANUARY 1, 1985

Model Years	(A) HDDV Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) HDDV Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.0	1.000	0.0	0.0	0.	0.0	0.0
1984	0.142	1.000	0.142	0.172	70400.	12135.6	0.243
1983	0.085	1.000	0.085	0.104	66900.	6937.2	0.139
1982	0.054	1.000	0.054	0.065	60600.	3948.7	0.079
1981	0.098	1.000	0.098	0.120	54200.	6483.4	0.130
1980	0.093	1.000	0.093	0.113	47900.	5432.9	0.109
1979	0.072	1.000	0.072	0.088	43700.	3824.9	0.076
1978	0.052	1.000	0.052	0.063	39400.	2466.7	0.049
1977	0.042	1.000	0.042	0.051	36600.	1873.2	0.037
1976	0.042	1.000	0.042	0.051	34500.	1748.9	0.035
1975	0.031	1.000	0.031	0.038	33100.	1243.4	0.025
1974	0.024	1.000	0.024	0.029	32400.	925.6	0.018
1973	0.025	1.000	0.025	0.031	31700.	975.0	0.019
1972	0.019	1.000	0.019	0.023	31000.	727.3	0.015
1971	0.013	1.000	0.013	0.016	29600.	464.2	0.009
1970	0.010	1.000	0.010	0.012	27500.	317.6	0.006
1969	0.007	1.000	0.007	0.009	24600.	209.3	0.004
1968	0.004	1.000	0.004	0.005	20400.	94.2	0.002
1967	0.004	1.000	0.004	0.005	17600.	81.3	0.002
1966-	0.007	1.000	0.007	0.008	17600.	147.6	0.003
		DAF:	0.823		TFNORM:	50037.0	

WHERE:

A = January 1 registration mix from Table 3.7.4.
B = Fleet sales fractions will always equal 1.000 for HDDVs.
D = Sales weighted fleet mileage accumulation rate from Table 3.7.4, adjusted to January 1.
D(1) = 0
D(MYI)= Annual Miles(MYI-1) , MYI=2,...,20+

DATE: MARCH 31, 1981

TABLE 3.7.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES

* $SCF(s) = EXP(A + B*s + C*s^2)$

Pol	Model Years	Coefficients A	B	C
HC	All	0.92400	-0.05500	0.00044
CO	All	1.39600	-0.08800	0.00091
NOx	All	0.67600	-0.04800	0.00071

* where s = average speed (mph)

DATE: MARCH 31, 1981

TABLE 3.7.7

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
HEAVY DUTY DIESEL POWERED VEHICLES

* TCF = EXP(TC * (T - TT))

Pol	Model Years	TC Low	TC High
HC	All	0.0	0.0
CO	All	0.0	0.0
NOx	All	0.0	0.0

* WHERE:
T = Ambient temperature (Fahrenheit)
TC = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: This table indicates diesel emissions are insensitive to temperature.

DATE: MARCH 31, 1981

TABLE 3.8.1A

EXHAUST EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
MOTORCYCLES

* BER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Mile)	Deterioration Rate (Gm/Mi/10K Mi)	50,000 Mile Emission Level (Grams/Mile)
HC	Pre-1978	11.48	0.78	15.38
	1978-1979	4.30	1.65	12.55
	1980+	4.12	1.73	12.77
CO	Pre-1978	51.59	2.47	63.94
	1978-1979	35.07	3.96	54.87
	1980+	34.95	2.02	45.05
NOx	Pre-1978	0.11	0.06	0.41
	1978-1979	0.43	0.0	0.43
	1980+	0.57	0.0	0.57

* WHERE:
BER = Basic emission rate
ZML = Zero mile level
DR = Deterioration rate
M = Cumulative mileage / 10,000

See Appendix A, Section A.1.5, for the emission standards.

DATE: MARCH 31, 1981

TABLE 3.8.1B

CRANKCASE AND EVAPORATIVE HYDROCARBON EMISSIONS FOR
HIGH ALTITUDE 49-STATE
MOTORCYCLES

** CCEV = (HSK * TPD + DNL)/MPD + CC

Model Years	SHED Hot Soak Emissions (Gm/Trip)	Trips* Per Day	SHED Diurnal Emissions (Gm/Day)	Miles* Per Day	Crankcase Emissions (Gm/Mile)	Total Evap& Crankcase Emissions (Gm/Mile)
Pre-1978	5.93	1.35	8.72	8.30	0.40	2.42
1978-1979	9.10	1.35	10.97	8.30	0.0	2.80
1980+	9.79	1.35	11.18	8.30	0.0	2.94

*Default information that may be altered by the MOBILE2 user with information about the local area.

** WHERE:
CCEV = Total crankcase & evaporative HC emissions (Gm/Mile)
HSK = Hot soak emissions (Gm/Trip)
TPD = Trips per day
DNL = Diurnal emissions (Gm/Day)
MPD = Miles per day
CC = Crankcase emissions (Gm/Mile)

DATE: MARCH 31, 1981

TABLE 3.8.2A

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
MOTORCYCLES
HC

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	12.6	1952	12.6	1953	12.6	1954	12.6	1955	12.6	1956	12.6	1957	12.6	1958	12.6	1959	12.6	1960	12.6	1961	12.6	1962	12.6
1952	12.6	1953	12.6	1954	12.6	1955	12.6	1956	12.6	1957	12.6	1958	12.6	1959	12.6	1960	12.6	1961	12.6	1962	12.6	1963	12.6
1953	12.6	1954	12.6	1955	12.6	1956	12.6	1957	12.6	1958	12.6	1959	12.6	1960	12.6	1961	12.6	1962	12.6	1963	12.6	1964	12.6
1954	12.6	1955	12.6	1956	12.6	1957	12.6	1958	12.6	1959	12.6	1960	12.6	1961	12.6	1962	12.6	1963	12.6	1964	12.6	1965	12.6
1955	12.6	1956	12.6	1957	12.6	1958	12.6	1959	12.6	1960	12.6	1961	12.6	1962	12.6	1963	12.6	1964	12.6	1965	12.6	1966	12.6
1956	12.6	1957	12.6	1958	12.6	1959	12.6	1960	12.6	1961	12.6	1962	12.6	1963	12.6	1964	12.6	1965	12.6	1966	12.6	1967	12.6
1957	12.6	1958	12.6	1959	12.6	1960	12.6	1961	12.6	1962	12.6	1963	12.6	1964	12.6	1965	12.6	1966	12.6	1967	12.6	1968	12.6
1958	12.6	1959	12.6	1960	12.6	1961	12.6	1962	12.6	1963	12.6	1964	12.6	1965	12.6	1966	12.6	1967	12.6	1968	12.6	1969	12.6
1959	12.6	1960	12.6	1961	12.6	1962	12.6	1963	12.6	1964	12.6	1965	12.6	1966	12.6	1967	12.6	1968	12.6	1969	12.6	1970	12.6
1960	12.6	1961	12.6	1962	12.6	1963	12.6	1964	12.6	1965	12.6	1966	12.6	1967	12.6	1968	12.6	1969	12.6	1970	12.6	1971	12.6
1961	12.5	1962	12.5	1963	12.5	1964	12.5	1965	12.5	1966	12.5	1967	12.5	1968	12.5	1969	12.5	1970	12.5	1971	12.5	1972	12.5
1962	12.5	1963	12.5	1964	12.5	1965	12.5	1966	12.5	1967	12.5	1968	12.5	1969	12.5	1970	12.5	1971	12.5	1972	12.5	1973	12.5
1963	12.5	1964	12.5	1965	12.5	1966	12.5	1967	12.5	1968	12.5	1969	12.5	1970	12.5	1971	12.5	1972	12.5	1973	12.5	1974	12.5
1964	12.4	1965	12.4	1966	12.4	1967	12.4	1968	12.4	1969	12.4	1970	12.4	1971	12.4	1972	12.4	1973	12.4	1974	12.4	1975	12.4
1965	12.4	1966	12.4	1967	12.4	1968	12.4	1969	12.4	1970	12.4	1971	12.4	1972	12.4	1973	12.4	1974	12.4	1975	12.4	1976	12.4
1966	12.2	1967	12.2	1968	12.2	1969	12.2	1970	12.2	1971	12.2	1972	12.2	1973	12.2	1974	12.2	1975	12.2	1976	12.2	1977	12.2
1967	12.1	1968	12.1	1969	12.1	1970	12.1	1971	12.1	1972	12.1	1973	12.1	1974	12.1	1975	12.1	1976	12.1	1977	12.1	1978	5.6
1968	11.9	1969	11.9	1970	11.9	1971	11.9	1972	11.9	1973	11.9	1974	11.9	1975	11.9	1976	11.9	1977	11.9	1978	5.2	1979	5.2
1969	11.6	1970	11.6	1971	11.6	1972	11.6	1973	11.6	1974	11.6	1975	11.6	1976	11.6	1977	11.6	1978	4.6	1979	4.6	1980	4.5
1970	11.5	1971	11.5	1972	11.5	1973	11.5	1974	11.5	1975	11.5	1976	11.5	1977	11.5	1978	4.3	1979	4.3	1980	4.1	1981	4.1

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	12.6	1964	12.6	1965	12.6	1966	12.6	1967	12.6	1968	12.6	1969	12.6	1970	12.6	1971	12.6	1972	12.6	1973	12.6	1974	12.6
1964	12.6	1965	12.6	1966	12.6	1967	12.6	1968	12.6	1969	12.6	1970	12.6	1971	12.6	1972	12.6	1973	12.6	1974	12.6	1975	12.6
1965	12.6	1966	12.6	1967	12.6	1968	12.6	1969	12.6	1970	12.6	1971	12.6	1972	12.6	1973	12.6	1974	12.6	1975	12.6	1976	12.6
1966	12.6	1967	12.6	1968	12.6	1969	12.6	1970	12.6	1971	12.6	1972	12.6	1973	12.6	1974	12.6	1975	12.6	1976	12.6	1977	12.6
1967	12.6	1968	12.6	1969	12.6	1970	12.6	1971	12.6	1972	12.6	1973	12.6	1974	12.6	1975	12.6	1976	12.6	1977	12.6	1978	6.6
1968	12.6	1969	12.6	1970	12.6	1971	12.6	1972	12.6	1973	12.6	1974	12.6	1975	12.6	1976	12.6	1977	12.6	1978	6.6	1979	6.6
1969	12.6	1970	12.6	1971	12.6	1972	12.6	1973	12.6	1974	12.6	1975	12.6	1976	12.6	1977	12.6	1978	6.6	1979	6.6	1980	6.6
1970	12.6	1971	12.6	1972	12.6	1973	12.6	1974	12.6	1975	12.6	1976	12.6	1977	12.6	1978	6.6	1979	6.6	1980	6.6	1981	6.6
1971	12.6	1972	12.6	1973	12.6	1974	12.6	1975	12.6	1976	12.6	1977	12.6	1978	6.6	1979	6.6	1980	6.6	1981	6.6	1982	6.6
1972	12.6	1973	12.6	1974	12.6	1975	12.6	1976	12.6	1977	12.6	1978	6.6	1979	6.6	1980	6.5	1981	6.5	1982	6.5	1983	6.5
1973	12.5	1974	12.5	1975	12.5	1976	12.5	1977	12.5	1978	6.6	1979	6.6	1980	6.5	1981	6.5	1982	6.5	1983	6.5	1984	6.5
1974	12.5	1975	12.5	1976	12.5	1977	12.5	1978	6.5	1979	6.5	1980	6.4	1981	6.4	1982	6.4	1983	6.4	1984	6.4	1985	6.4
1975	12.5	1976	12.5	1977	12.5	1978	6.4	1979	6.4	1980	6.4	1981	6.4	1982	6.4	1983	6.4	1984	6.4	1985	6.4	1986	6.4
1976	12.4	1977	12.4	1978	6.3	1979	6.3	1980	6.2	1981	6.2	1982	6.2	1983	6.2	1984	6.2	1985	6.2	1986	6.2	1987	6.2
1977	12.4	1978	6.1	1979	6.1	1980	6.1	1981	6.1	1982	6.1	1983	6.1	1984	6.1	1985	6.1	1986	6.1	1987	6.1	1988	6.1
1978	5.9	1979	5.9	1980	5.8	1981	5.8	1982	5.8	1983	5.8	1984	5.8	1985	5.8	1986	5.8	1987	5.8	1988	5.8	1989	5.8
1979	5.6	1980	5.5	1981	5.5	1982	5.5	1983	5.5	1984	5.5	1985	5.5	1986	5.5	1987	5.5	1988	5.5	1989	5.5	1990	5.5
1980	5.1	1981	5.1	1982	5.1	1983	5.1	1984	5.1	1985	5.1	1986	5.1	1987	5.1	1988	5.1	1989	5.1	1990	5.1	1991	5.1
1981	4.5	1982	4.5	1983	4.5	1984	4.5	1985	4.5	1986	4.5	1987	4.5	1988	4.5	1989	4.5	1990	4.5	1991	4.5	1992	4.5
1982	4.1	1983	4.1	1984	4.1	1985	4.1	1986	4.1	1987	4.1	1988	4.1	1989	4.1	1990	4.1	1991	4.1	1992	4.1	1993	4.1

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.8.4.

DATE: MARCH 31, 1981

TABLE 3.8.2B

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
MOTORCYCLES
CO

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	55.1	1952	55.1	1953	55.1	1954	55.1	1955	55.1	1956	55.1	1957	55.1	1958	55.1	1959	55.1	1960	55.1	1961	55.1	1962	55.1
1952	55.1	1953	55.1	1954	55.1	1955	55.1	1956	55.1	1957	55.1	1958	55.1	1959	55.1	1960	55.1	1961	55.1	1962	55.1	1963	55.1
1953	55.1	1954	55.1	1955	55.1	1956	55.1	1957	55.1	1958	55.1	1959	55.1	1960	55.1	1961	55.1	1962	55.1	1963	55.1	1964	55.1
1954	55.1	1955	55.1	1956	55.1	1957	55.1	1958	55.1	1959	55.1	1960	55.1	1961	55.1	1962	55.1	1963	55.1	1964	55.1	1965	55.1
1955	55.1	1956	55.1	1957	55.1	1958	55.1	1959	55.1	1960	55.1	1961	55.1	1962	55.1	1963	55.1	1964	55.1	1965	55.1	1966	55.1
1956	55.1	1957	55.1	1958	55.1	1959	55.1	1960	55.1	1961	55.1	1962	55.1	1963	55.1	1964	55.1	1965	55.1	1966	55.1	1967	55.1
1957	55.1	1958	55.1	1959	55.1	1960	55.1	1961	55.1	1962	55.1	1963	55.1	1964	55.1	1965	55.1	1966	55.1	1967	55.1	1968	55.1
1958	55.1	1959	55.1	1960	55.1	1961	55.1	1962	55.1	1963	55.1	1964	55.1	1965	55.1	1966	55.1	1967	55.1	1968	55.1	1969	55.1
1959	55.1	1960	55.1	1961	55.1	1962	55.1	1963	55.1	1964	55.1	1965	55.1	1966	55.1	1967	55.1	1968	55.1	1969	55.1	1970	55.1
1960	55.0	1961	55.0	1962	55.0	1963	55.0	1964	55.0	1965	55.0	1966	55.0	1967	55.0	1968	55.0	1969	55.0	1970	55.0	1971	55.0
1961	55.0	1962	55.0	1963	55.0	1964	55.0	1965	55.0	1966	55.0	1967	55.0	1968	55.0	1969	55.0	1970	55.0	1971	55.0	1972	55.0
1962	54.9	1963	54.9	1964	54.9	1965	54.9	1966	54.9	1967	54.9	1968	54.9	1969	54.9	1970	54.9	1971	54.9	1972	54.9	1973	54.9
1963	54.8	1964	54.8	1965	54.8	1966	54.8	1967	54.8	1968	54.8	1969	54.8	1970	54.8	1971	54.8	1972	54.8	1973	54.8	1974	54.8
1964	54.6	1965	54.6	1966	54.6	1967	54.6	1968	54.6	1969	54.6	1970	54.6	1971	54.6	1972	54.6	1973	54.6	1974	54.6	1975	54.6
1965	54.4	1966	54.4	1967	54.4	1968	54.4	1969	54.4	1970	54.4	1971	54.4	1972	54.4	1973	54.4	1974	54.4	1975	54.4	1976	54.4
1966	54.0	1967	54.0	1968	54.0	1969	54.0	1970	54.0	1971	54.0	1972	54.0	1973	54.0	1974	54.0	1975	54.0	1976	54.0	1977	54.0
1967	53.6	1968	53.6	1969	53.6	1970	53.6	1971	53.6	1972	53.6	1973	53.6	1974	53.6	1975	53.6	1976	53.6	1977	53.6	1978	38.2
1968	52.9	1969	52.9	1970	52.9	1971	52.9	1972	52.9	1973	52.9	1974	52.9	1975	52.9	1976	52.9	1977	52.9	1978	37.2	1979	37.2
1969	52.1	1970	52.1	1971	52.1	1972	52.1	1973	52.1	1974	52.1	1975	52.1	1976	52.1	1977	52.1	1978	35.9	1979	35.9	1980	35.4
1970	51.6	1971	51.6	1972	51.6	1973	51.6	1974	51.6	1975	51.6	1976	51.6	1977	51.6	1978	35.1	1979	35.1	1980	34.9	1981	34.9

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	55.1	1964	55.1	1965	55.1	1966	55.1	1967	55.1	1968	55.1	1969	55.1	1970	55.1	1971	55.1	1972	55.1	1973	55.1	1974	55.1
1964	55.1	1965	55.1	1966	55.1	1967	55.1	1968	55.1	1969	55.1	1970	55.1	1971	55.1	1972	55.1	1973	55.1	1974	55.1	1975	55.1
1965	55.1	1966	55.1	1967	55.1	1968	55.1	1969	55.1	1970	55.1	1971	55.1	1972	55.1	1973	55.1	1974	55.1	1975	55.1	1976	55.1
1966	55.1	1967	55.1	1968	55.1	1969	55.1	1970	55.1	1971	55.1	1972	55.1	1973	55.1	1974	55.1	1975	55.1	1976	55.1	1977	55.1
1967	55.1	1968	55.1	1969	55.1	1970	55.1	1971	55.1	1972	55.1	1973	55.1	1974	55.1	1975	55.1	1976	55.1	1977	55.1	1978	40.7
1968	55.1	1969	55.1	1970	55.1	1971	55.1	1972	55.1	1973	55.1	1974	55.1	1975	55.1	1976	55.1	1977	55.1	1978	40.7	1979	40.7
1969	55.1	1970	55.1	1971	55.1	1972	55.1	1973	55.1	1974	55.1	1975	55.1	1976	55.1	1977	55.1	1978	40.7	1979	40.7	1980	37.8
1970	55.1	1971	55.1	1972	55.1	1973	55.1	1974	55.1	1975	55.1	1976	55.1	1977	55.1	1978	40.7	1979	40.7	1980	37.8	1981	37.8
1971	55.1	1972	55.1	1973	55.1	1974	55.1	1975	55.1	1976	55.1	1977	55.1	1978	40.7	1979	40.7	1980	37.8	1981	37.8	1982	37.8
1972	55.0	1973	55.0	1974	55.0	1975	55.0	1976	55.0	1977	55.0	1978	40.6	1979	40.6	1980	37.8	1981	37.8	1982	37.8	1983	37.8
1973	55.0	1974	55.0	1975	55.0	1976	55.0	1977	55.0	1978	40.5	1979	40.5	1980	37.7	1981	37.7	1982	37.7	1983	37.7	1984	37.7
1974	54.9	1975	54.9	1976	54.9	1977	54.9	1978	40.4	1979	40.4	1980	37.7	1981	37.7	1982	37.7	1983	37.7	1984	37.7	1985	37.7
1975	54.8	1976	54.8	1977	54.8	1978	40.2	1979	40.2	1980	37.6	1981	37.6	1982	37.6	1983	37.6	1984	37.6	1985	37.6	1986	37.6
1976	54.6	1977	54.6	1978	39.9	1979	39.9	1980	37.4	1981	37.4	1982	37.4	1983	37.4	1984	37.4	1985	37.4	1986	37.4	1987	37.4
1977	54.4	1978	39.5	1979	39.5	1980	37.2	1981	37.2	1982	37.2	1983	37.2	1984	37.2	1985	37.2	1986	37.2	1987	37.2	1988	37.2
1978	39.0	1979	39.0	1980	36.9	1981	36.9	1982	36.9	1983	36.9	1984	36.9	1985	36.9	1986	36.9	1987	36.9	1988	36.9	1989	36.9
1979	38.2	1980	36.6	1981	36.6	1982	36.6	1983	36.6	1984	36.6	1985	36.6	1986	36.6	1987	36.6	1988	36.6	1989	36.6	1990	36.6
1980	36.1	1981	36.1	1982	36.1	1983	36.1	1984	36.1	1985	36.1	1986	36.1	1987	36.1	1988	36.1	1989	36.1	1990	36.1	1991	36.1
1981	35.4	1982	35.4	1983	35.4	1984	35.4	1985	35.4	1986	35.4	1987	35.4	1988	35.4	1989	35.4	1990	35.4	1991	35.4	1992	35.4
1982	34.9	1983	34.9	1984	34.9	1985	34.9	1986	34.9	1987	34.9	1988	34.9	1989	34.9	1990	34.9	1991	34.9	1992	34.9	1993	34.9

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F, 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.8.4.

DATE: MARCH 31, 1981

TABLE 3.8.2C

EXHAUST EMISSION LEVELS FOR
HIGH ALTITUDE 49-STATE
MOTORCYCLES
NOx

January 1 of Calendar Year

1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1951	0.2	1952	0.2	1953	0.2	1954	0.2	1955	0.2	1956	0.2	1957	0.2	1958	0.2	1959	0.2	1960	0.2	1961	0.2	1962	0.2
1952	0.2	1953	0.2	1954	0.2	1955	0.2	1956	0.2	1957	0.2	1958	0.2	1959	0.2	1960	0.2	1961	0.2	1962	0.2	1963	0.2
1953	0.2	1954	0.2	1955	0.2	1956	0.2	1957	0.2	1958	0.2	1959	0.2	1960	0.2	1961	0.2	1962	0.2	1963	0.2	1964	0.2
1954	0.2	1955	0.2	1956	0.2	1957	0.2	1958	0.2	1959	0.2	1960	0.2	1961	0.2	1962	0.2	1963	0.2	1964	0.2	1965	0.2
1955	0.2	1956	0.2	1957	0.2	1958	0.2	1959	0.2	1960	0.2	1961	0.2	1962	0.2	1963	0.2	1964	0.2	1965	0.2	1966	0.2
1956	0.2	1957	0.2	1958	0.2	1959	0.2	1960	0.2	1961	0.2	1962	0.2	1963	0.2	1964	0.2	1965	0.2	1966	0.2	1967	0.2
1957	0.2	1958	0.2	1959	0.2	1960	0.2	1961	0.2	1962	0.2	1963	0.2	1964	0.2	1965	0.2	1966	0.2	1967	0.2	1968	0.2
1958	0.2	1959	0.2	1960	0.2	1961	0.2	1962	0.2	1963	0.2	1964	0.2	1965	0.2	1966	0.2	1967	0.2	1968	0.2	1969	0.2
1959	0.2	1960	0.2	1961	0.2	1962	0.2	1963	0.2	1964	0.2	1965	0.2	1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2
1960	0.2	1961	0.2	1962	0.2	1963	0.2	1964	0.2	1965	0.2	1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2
1961	0.2	1962	0.2	1963	0.2	1964	0.2	1965	0.2	1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2
1962	0.2	1963	0.2	1964	0.2	1965	0.2	1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2
1963	0.2	1964	0.2	1965	0.2	1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2
1964	0.2	1965	0.2	1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2
1965	0.2	1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2
1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2
1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.4
1968	0.1	1969	0.1	1970	0.1	1971	0.1	1972	0.1	1973	0.1	1974	0.1	1975	0.1	1976	0.1	1977	0.1	1978	0.4	1979	0.4
1969	0.1	1970	0.1	1971	0.1	1972	0.1	1973	0.1	1974	0.1	1975	0.1	1976	0.1	1977	0.1	1978	0.4	1979	0.4	1980	0.6
1970	0.1	1971	0.1	1972	0.1	1973	0.1	1974	0.1	1975	0.1	1976	0.1	1977	0.1	1978	0.4	1979	0.4	1980	0.6	1981	0.6

January 1 of Calendar Year

1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993	
MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**	MY*	E**
1963	0.2	1964	0.2	1965	0.2	1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2
1964	0.2	1965	0.2	1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2
1965	0.2	1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2
1966	0.2	1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2
1967	0.2	1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.4
1968	0.2	1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.4	1979	0.4
1969	0.2	1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.4	1979	0.4	1980	0.6
1970	0.2	1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.4	1979	0.4	1980	0.6	1981	0.6
1971	0.2	1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.4	1979	0.4	1980	0.6	1981	0.6	1982	0.6
1972	0.2	1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.4	1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6
1973	0.2	1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.4	1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6
1974	0.2	1975	0.2	1976	0.2	1977	0.2	1978	0.4	1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6
1975	0.2	1976	0.2	1977	0.2	1978	0.4	1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6
1976	0.2	1977	0.2	1978	0.4	1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6
1977	0.2	1978	0.4	1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6
1978	0.4	1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6
1979	0.4	1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6
1980	0.6	1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6
1981	0.6	1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6
1982	0.6	1983	0.6	1984	0.6	1985	0.6	1986	0.6	1987	0.6	1988	0.6	1989	0.6	1990	0.6	1991	0.6	1992	0.6	1993	0.6

*MY -- Indicates the model year.
**E -- Indicates the average gram/mile emission level for model year "MY" on January 1 of the given calendar year. These emission levels are calculated for the basic test conditions: 19.6 MPH, 68<=TEMP<=86 Degrees F. 20.6% of VMT traveled in cold start, 27.3% of VMT in a hot start. Emissions are based on the January 1 mileage accumulation figures given in Table 3.8.4.

DATE: MARCH 31, 1981

TABLE 3.8.3

IDLE EMISSION RATES FOR
HIGH ALTITUDE 49-STATE
MOTORCYCLES

* IER = ZML + (DR * M)

Pol	Model Years	Zero Mile Emission Level (Grams/Min.)	Deterioration Rate (Gm/Min/10K Mi)
HC	Pre-1978	2.41	0.42
	1978-1979	0.53	0.36
	1980+	0.78	0.38
CO	Pre-1978	5.03	0.23
	1978-1979	2.34	0.50
	1980+	2.56	0.26
NOx	Pre-1978	0.01	0.0
	1978-1979	0.02	0.0
	1980+	0.02	0.0

* WHERE:
IER = Idle emission rate
ZML = Zero mile level
DR = Deterioration Rate
M = Cumulative Mileage / 10,000

DATE: MARCH 31, 1981

TABLE 3.8.4

REGISTRATION MIX AND
MILEAGE ACCUMULATION RATES FOR
HIGH ALTITUDE 49-STATE
MOTORCYCLES

Model Year Index**	July 1 Registration Mix*	Mileage Accumulation Rate per vehicle*	Jan 1 Registration Mix	Jan 1 Mileage Accumulation Rate (fleet)	Jan 1 Mileage Accumulation (fleet)
1	0.133	4100.	0.044	0.	0.
2	0.145	2800.	0.145	4100.	2050.
3	0.138	2100.	0.138	2800.	5500.
4	0.116	1600.	0.116	2100.	7950.
5	0.123	1200.	0.123	1600.	9800.
6	0.114	800.	0.114	1200.	11200.
7	0.069	600.	0.069	800.	12200.
8	0.044	400.	0.044	600.	12900.
9	0.024	200.	0.024	400.	13400.
10	0.009	200.	0.009	200.	13700.
11	0.085	200.	0.085	200.	13900.
12	0.0	0.	0.0	200.	14100.
13	0.0	0.	0.0	0.	14200.
14	0.0	0.	0.0	0.	14200.
15	0.0	0.	0.0	0.	14200.
16	0.0	0.	0.0	0.	14200.
17	0.0	0.	0.0	0.	14200.
18	0.0	0.	0.0	0.	14200.
19	0.0	0.	0.0	0.	14200.
20+	0.0	0.	0.0	0.	14200.

* Default information that may be altered by the MOBILE2 user with information about the local area.

**The indices refer to the most recent model year vehicles in any given calendar year. Index 1 references the newest model year vehicles and index 20+ references the oldest model year vehicles.

DATE: MARCH 31, 1981

TABLE 3.8.5

EXAMPLE TRAVEL WEIGHTING FRACTION CALCULATION FOR
HIGH ALTITUDE 49-STATE
MOTORCYCLES
JANUARY 1, 1985

Model Years	(A) MC Fleet Registration	(B) Sales Fraction	(A*B)	(C=A*B/DAF) MC Registration	(D) Annual Mileage Accrual Rate	(C*D)	(C*D/TFNORM) Travel Fractions
1985	0.0	1.000	0.0	0.0	0.	0.0	0.0
1984	0.145	1.000	0.145	0.167	4100.	685.7	0.356
1983	0.138	1.000	0.138	0.159	2800.	445.7	0.232
1982	0.116	1.000	0.116	0.134	2100.	281.0	0.146
1981	0.123	1.000	0.123	0.142	1600.	227.0	0.118
1980	0.114	1.000	0.114	0.131	1200.	157.8	0.082
1979	0.069	1.000	0.069	0.080	800.	63.7	0.033
1978	0.044	1.000	0.044	0.051	600.	30.4	0.016
1977	0.024	1.000	0.024	0.028	400.	11.1	0.006
1976	0.009	1.000	0.009	0.010	200.	2.1	0.001
1975	0.085	1.000	0.085	0.098	200.	19.6	0.010
1974	0.0	1.000	0.0	0.0	200.	0.0	0.0
1973	0.0	1.000	0.0	0.0	0.	0.0	0.0
1972	0.0	1.000	0.0	0.0	0.	0.0	0.0
1971	0.0	1.000	0.0	0.0	0.	0.0	0.0
1970	0.0	1.000	0.0	0.0	0.	0.0	0.0
1969	0.0	1.000	0.0	0.0	0.	0.0	0.0
1968	0.0	1.000	0.0	0.0	0.	0.0	0.0
1967	0.0	1.000	0.0	0.0	0.	0.0	0.0
1966-	0.0	1.000	0.0	0.0	0.	0.0	0.0
		DAF:	0.867		TFNORM:	1924.0	

WHERE:

A = January 1 registration mix from Table 3.8.4.
B = Fleet sales fractions will always equal 1.000 for MCs.
D = Sales weighted fleet mileage accumulation rate from Table 3.8.4, adjusted to January 1.
D(1) = 0
D(MYI) = Annual Miles(MYI-1) , MYI=2,...,20+

DATE: MARCH 31, 1981

TABLE 3.8.6

SPEED CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
MOTORCYCLES

$$SCF(s,sadj) = SF(s)/SF(sadj)$$

$$SF(s) = EXP(A + B*s + C*s^2 + D*S^3 + E*s^4 + F*s^5), \text{ HC \& CO}$$
$$= A + B*s + C*s^2 + D*s^3 + E*s^4 + F*s^5, \text{ NOx}$$

Pollutant and Model Yr.	A	B	C	D	E	F
HC :						
PRE-1978	0.224612E+01	-0.290973E+00	0.158890E-01	-0.472494E-03	0.694077E-05	-0.392798E-07
1978-1979	0.215056E+01	-0.283620E+00	0.153836E-01	-0.442136E-03	0.628732E-05	-0.346311E-07
1980+	0.212230E+01	-0.291072E+00	0.169089E-01	-0.526148E-03	0.802705E-05	-0.470117E-07
CO :						
PRE-1978	0.181978E+01	-0.254663E+00	0.152347E-01	-0.487397E-03	0.758207E-05	-0.449514E-07
1978-1979	0.182133E+01	-0.272054E+00	0.170304E-01	-0.552021E-03	0.862543E-05	-0.511440E-07
1980+	0.204533E+01	-0.310618E+00	0.204852E-01	-0.708527E-03	0.116215E-04	-0.715690E-07
NOx:						
PRE-1978	0.244424E+01	-0.250107E+00	0.138293E-01	-0.287025E-03	0.207585E-05	0.0
1978+	0.144825E+01	-0.122444E+00	0.795024E-02	-0.171078E-03	0.125777E-05	0.0

Where:
- s = average speed (mph)
- sadj = basic test procedure speed; adjusted for fraction of cold start operation x and fraction of hot start operation w.
  [1/sadj = (w+x)/26 + (1-w-x)/16].

DATE: MARCH 31, 1981

TABLE 3.8.7A

TEMPERATURE CORRECTION FACTOR COEFFICIENTS FOR
HIGH ALTITUDE 49-STATE
MOTORCYCLES

* TCF(b) = EXP(TC(b) * (T - TT))

Pol	Model Years	Test segment 1 TC Low	Test segment 1 TC High	Test segment 2 TC Low	Test segment 2 TC High	Test segment 3 TC Low	Test segment 3 TC High
HC	Pre-1978	-0.20623E-01	-0.14381E-01	-0.24032E-02	0.13219E-02	-0.10081E-02	0.34799E-02
	1978-1979	-0.24462E-01	-0.12552E-01	-0.32017E-02	0.42667E-02	-0.86884E-03	0.75843E-02
	1980+	-0.21255E-01	-0.10888E-01	-0.52755E-03	-0.47925E-03	0.93659E-03	0.76666E-02
CO	Pre-1978	-0.13487E-01	-0.14691E-01	0.15784E-02	0.37462E-02	0.11097E-02	0.11014E-01
	1978-1979	-0.21126E-01	-0.38767E-01	-0.15289E-02	0.84685E-02	0.15749E-02	0.25179E-01
	1980+	-0.20843E-01	-0.21165E-01	-0.59951E-02	0.23603E-01	0.18253E-02	0.28483E-01
NOx	Pre-1978	-0.16897E-03	0.38841E-02	-0.89245E-02	-0.87325E-02	-0.72580E-02	-0.10839E-01
	1978+	-0.25074E-03	-0.10389E-02	-0.59791E-02	-0.92466E-02	-0.62690E-02	-0.10108E-01

* WHERE:
TCF(b) = Temperature correction factor for appropriate pollutant, ambient temperature, and model year; for test segment b.
T = Ambient temperature (Fahrenheit).
TC(b) = Temperature correction factor coefficient for appropriate pollutant, reference temperature & model year; for test segment b.
TT = Reference temperature = (67.5 , T< 68 F, Low)
(86.5 , T> 86 F, High)

NOTE: The temperature correction factor is used in conjunction with the Ripstwxn correction factor given in Table 3.8.7B.

The coefficients are zero in the temperature range of 68 F through 86 F.

DATE: MARCH 31, 1981

TABLE 3.8.7B

NORMALIZED BAG FRACTIONS FOR
HIGH ALTITUDE 49-STATE
MOTORCYCLES

		Normalized Fractions							
	Model	Test Seg.#1		Test Seg.#2		Test Seg.#3		Total Test	
Pol	Years	B1	D1	B2	D2	B3	D3	B0	D0
HC	Pre-1978	1.282	0.025	0.973	0.028	0.839	0.019	1.000	0.025
	1978-1979	1.345	0.074	0.946	0.054	0.842	0.048	1.000	0.056
	1980+	1.345	0.178	0.919	0.118	0.894	0.093	1.000	0.124
CO	Pre-1978	1.277	0.033	1.017	0.029	0.758	0.025	1.000	0.029
	1978-1979	1.442	0.071	0.996	0.042	0.674	0.033	1.000	0.046
	1980+	1.553	0.109	0.933	0.079	0.711	0.038	1.000	0.074
NOx	Pre-1978	1.121	0.009	0.785	0.001	1.319	-0.009	1.000	0.0
	1978+	1.199	-0.004	0.793	-0.002	1.245	0.006	1.000	0.0

NOTE: The fractions given in this table are used in the calculation of the speed/ temperature/ operating-mode correction factor (Ripstwxn)

WHERE:

Ripstwxn = ((TERM1 + TERM2 + TERM3)/DENOM) * SCF
TERM1 = W *TCF(1)*(B1+D1*M)
TERM2 = (1-W-X)*TCF(2)*(B2+D2*M)
TERM3 = X *TCF(3)*(B3+D3*M)
DENOM = B0 + D0*M
SCF = Speed correction factor for pollutant & model year
W = Fraction of VMT in the cold start mode
X = Fraction of VMT in the hot start mode
TCF(b) = Temperature correction factor for pollutant, model year; for test segment b
M = Cumulative mileage / 10,000

DATE: MARCH 31, 1981

Appendix F

SAMPLE CALCULATION OF MOTOR VEHICLE EMISSIONS

This appendix presents the procedure for calculating emissions factors in a step-by-step manner. Although most users of motor vehicle emission factors should rely on computerized calculations (such as MOBILE2), this sample calculation may prove useful to those becoming familiar with the methodologies presented in this document.

For this sample calculation, the light duty gasoline powered vehicle (LDGV) hydrocarbon emissions for January 1, 1985 are computed. An ambient temperature of 80°F is assumed. Although this HC calculation is only for the LDGVs, it is designed to give the user an understanding of the logical sequence of calculations. The emission factor calculation procedure of the other vehicle types follows the same logical sequence; however, the equations may differ.

An inventory of motor vehicle sources of hydrocarbon emissions should include emissions from the eight vehicle types. For each vehicle type the exhaust emission factors should be calculated with the equation presented in the corresponding chapter. The resultant exhaust emission factors multiplied by the fraction of vehicles-miles-traveled (VMT) for the respective vehicle types will sum to the average gram/mile exhaust emission levels from the entire highway mobile source fleet. For hydrocarbon emission estimates, the crankcase and evaporative HC emissions are calculated and added to the exhaust HC emissions estimates.

F.1 DATA REQUIREMENTS

Before determining what data are required, the user should review the conditions under which vehicles are tested in order to ascertain whether these conditions differ from the locality specific ambient temperature, average speeds, and vehicle operating modes (see Section .A.1 in each chapter).

The user should determine the following locality specific data:

1. Ambient temperature.
2. Fraction of January 1 travel, by model year, for each vehicle type (model year registration distributions and fleet annual mileage accumulation rates).
3. The VMT mix.
4. Percent of VMT in cold start and hot start operating modes for light duty vehicles, light duty trucks, and motorcycles.
5. The calendar year of study (January 1 of that year).
6. Any other data required to utilize additional (optional) correction factors.

F.2 DATA USED TO CALCULATE HC EMISSIONS

For this sample calculation, the following conditions are assumed:

1. Ambient temperature is 80°F.
2. National statistics on average fleet annual mileage accumulation rates and vehicle registration by model year are used.
3. The total hydrocarbon emissions (as opposed to non-methane HC) are calculated for the speed of 30 mph.
4. The percentages of VMT in the cold start, stablized, and hot start operating modes are assumed to be 40%, 30%, and 30% respectively, for light duty vehicles; both catalyst and non-catalyst.
5. The calendar year of study is 1985.
6. All other conditions are assumed to match the vehicle testing conditions.

F.3 CALCULATION OF EXHAUST EMISSION FACTORS

The equation to calculate the exhaust hydrocarbon emission factor for LDGVs as discussed in Chapter 1, is given as follows:

$$BEFnpstwx = SUMi(BERipn^{*}\ [NMi]\ ^{*}TFi^{*}Ripstwxn^{*} [ACCFipt^{*}ELCFip^{*}TTCFip^{*}HCF]+CCEVi^{*}TFin)$$

Since the air conditioning usage (ACCFipt), extra load (ELCFip), trailer towing (TTCFip), and humidity level for NOx (HCF) are assumed to match the basic test conditions, they are set equal to 1.0 (i.e., they have no effect on the calculations and may be disregarded). Similarly, the non-methane fraction (NMi) can be set to 1.0 since total HC emissions are being calculated.

Only four factors are of concern in this sample calculation: (1) the basic exhaust emission level (BERipn); (2) the model year fraction of annual travel (TFin); (3) the speed/temperature/operating-mode correction factor (Ripstwxn); and (4) the crankcase and evaporative HC emission level (CCEVi). Refer to Chapter 1 for a full explanation of the emission factors equation.

F.3.1 Basic Exhaust Emission Levels (BERipn)

The basic exhaust emission levels for LDGVs are the emission levels per mile; assuming the basic test conditions. The HC emission levels on January 1, 1985 are given in Table 1.1.2A. These BERipn values are also listed in Table F-1 and will be used to calculate the tailpipe exhaust HC emissions.

F.3.2 Travel Weighting Fractions (TFin)

In order to calcula.e the fraction of annual travel by model year (TFin), the fraction of in-use vehicles by model year are weighted on the basis of annual rate of mileage accumulation. In many cases, locality specific data on automobile use and registration are readily available. Whenever possible, local data should be used. However, for purposes of this sample calculation, the national average fraction of annual travel from Table 1.1.5 will be used. The TFin values are also listed in Table F-1 to be used for calculating the exhaust HC emissions.

F.3.3 Speed/Temperature/Operating-Mode Correction Factor (Ripstwxn)

Although the speed/temperature/operating-mode correction factor can be calculated manually using the generalized equations in Chapter 1, the computer program, MOBILE2, was used to generate the Ripstwxn values for a cold/stable/hot mix of 40%/30%/30%, an ambient temperature of 80°F, and an average route speed of 30 mph. The appropriate Ripstwxn values are listed in Table F-1.

F.3.4 Calculated Tailpipe Exhaust Emission Factors

The final step in the calculation of the tailpipe exhaust HC emission factor for LDGVs is to multiply the mean emission levels, travel factors, and correction factors for each model year and then sum the products.

This procedure is also shown in Table F-1 depicting the calculation of a tailpipe exhaust HC emission factor for LDGVs. The emission factor is expressed in units of grams per vehicle mile traveled.

If the pollutant were CO or NOx, no further calculations would be needed to estimate the total exhaust emission factor. However, for HC emission estimates the additional calculations in Sections F.3.5 and F.3.6 need to be performed.

F.3.5 Crankcase and Evaporative HC Emission Levels (CCEVi)

To calculate the crankcase and evaporative HC emission level, the model year total crankcase and evaporative HC emission levels (CCEVi) are required from Table 1.1.1B. Further, the fractions of annual travel by model year (TFin) are required (the same as in Section F.3.2). The final step in this procedure is to multiply the average CCEVi levels with the annual travel model year fractions, TFin, and then sum the products.

This procedure is shown in Table F-2 depicting the calculations of the crankcase and evaporative HC emission factor for LDGVs. The emission factor is expressed in units of grams per vehicle mile traveled.

F.3.6 Total HC Emission Factors (BEFnpstwx)

Summing the emission factors from Sections F.3.4 and F.3.5 will result in the total HC emission factor. For this example the total HC emission factor is 2.534 grams/mile (2.095 + 0.439).

Table F-1

CALCULATION OF TAILPIPE EXHAUST HYDROCARBON EMISSION FACTOR FOR LIGHT DUTY GASOLINE POWERED VEHICLES

Ambient Temperature 80°F, Avg. Route Speed 30 mph,
40% Cold Start/30% Hot Start,
January 1, 1985

Model Year(i)	BERipn	TFin	Ripstwxn	(BERipn)*(TFin)*(Ripstwxn)
1985	0.4	.029	1.037	0.012
1984	0.6	.124	0.908	0.068
1983	0.9	.110	0.810	0.080
1982	1.1	.082	0.760	0.069
1981	1.4	.105	0.731	0.107
1980	2.1	.115	0.779	0.188
1979	3.5	.096	0.785	0.264
1978	3.8	.074	0.778	0.219
1977	4.1	.066	0.772	0.209
1976	4.4	.056	0.767	0.189
1975	4.7	.043	0.764	0.154
1974	5.5	.030	0.751	0.124
1973	5.7	.024	0.750	0.103
1972	5.8	.017	0.843	0.083
1971	8.6	.011	0.865	0.082
1970	8.9	.006	0.879	0.047
1969	8.6	.003	0.839	0.022
1968	8.7	.001	0.821	0.007
1967	10.4	.001	0.822	0.008
1966	10.5	.007	0.822	0.060

Tailpipe HC = 2.095 gm/mile

Table F-2
CALCULATION OF CRANKCASE AND EVAPORATIVE HYDROCARBON
EMISSION FACTOR FOR LIGHT DUTY GASOLINE POWERED VEHICLES

Calendar Year 1985

Model Year(i)	CCEVi	TFin	(CCEVi)*(TFin)
1985	0.10	.029	.003
1984	0.10	.124	.012
1983	0.10	.110	.011
1982	0.10	.082	.008
1981	0.10	.105	.011
1980	0.24	.115	.028
1979	0.24	.096	.023
1978	0.24	.074	.018
1977	1.10	.066	.073
1976	1.10	.056	.047
1975	1.10	.043	.062
1974	1.10	.030	.033
1973	1.10	.024	.026
1972	1.10	.017	.019
1971	1.59	.011	.017
1970	2.28	.006	.014
1969	2.28	.003	.007
1968	2.28	.001	.002
1967	3.08	.001	.003
1966	3.08	.007	.022

Crankcase and Evaporative HC = .439 gm/mi

Appendix G

NATIONAL AVERAGE EMISSION FACTORS FOR HIGHWAY VEHICLES

Light duty vehicles, light duty trucks, heavy duty vehicles, and motorcycles comprise the four main types of highway vehicles. Within each of these types, the number of engine cycles and fuel type results in different emission characteristics. For example, vehicles may be powered by either gasoline or diesel fuel.

It is also important to note that highway vehicle emission factors change with time and, therefore, must be calculated for a specific time period. The major reason for this time dependence is the gradual replacement of vehicles with older emission control equipment by vehicles with newer control equipment, as well as the gradual deterioration of vehicle emissions as they accumulate mileage.

This appendix contains average emission factors for several calendar years between 1975 and 1995 for various ambient temperature, cold/hot start VMT weighting, and average speed combinations. This appendix includes one case that represents the average national emission factors as generated from the basic test conditions (in Tables G-3, G-9, and G-15 for HC, CO, and NOx; respectively) as well as other scenarios that can be used to assess the sensitivity of the emission factors to changing input conditions. All emission factors are given in units of grams of pollutant per vehicle mile traveled. The hydrocarbon emission levels include the crankcase and evaporative HC emission results. Further, the hydrocarbon emissions are total, rather than non-methane.

Emission factors presented in this section are intended to assist those individuals interested in compiling approximate mobile source emission estimates for large areas, such as an individual air quality region or the entire nation.

The emission factor calculation techniques presented in this document are strongly recommended for the formulation of localized emission estimates required for air quality modeling or for the evaluation of air pollutant control strategies. Many factors, which vary with geographic location and estimation situation, can affect emission estimates considerably. The factors of concern include average speed, percentage of VMT in cold/hot start vehicle operation, percentage of travel by vehicle type, ambient temperature, air conditioning usage, vehicle load, trailer towing, and humidity. Clearly, the innumerable combinations make it impossible to present mobile source emission factors for each application. An effort has been made, therefore, to present emission factors for a range of conditions. The following conditions are considered for each of these cases:

1. Each table represents one average speed. There are 6 basic tables with speeds of 5.0, 10.0, 19.6, 35.0, 50.0, and 55.0 mph.

2. Each table presents six calendar years: 1975, 1980, 1982, 1987, 1990, and 1995.

3. Each calendar year presents 30 combinations of five temperatures and six operating modes. The five temperatures are 0°, 25°, 50°, 75°, and 100°F. The six operating mode combinations (percent VMT in a cold start, non-catalyst; percent VMT in a hot start, catalyst; and percent VMT in a cold start, catalyst) are 0/0/0; 0/27.3/0; 0/100/0; 20.6/0/20.6, 20.6/27.3/20.6; and 100/0/100.

4. The VMT mixes are those calculated from MOBILE2. They are as follows:

Calendar Year	LDGV/LDGT1/LDGT2/HDGV/LDDV/LDDT/HDDV/MC
1975	.786/ .083/ .047/.042/.000/.000/.033/.009
1980	.781/ .083/ .047/.042/.005/.001/.033/.009
1982	.773/ .082/ .046/.042/.013/.002/.033/.009
1987	.729/ .077/ .046/.042/.056/.007/.033/.009
1990	.693/ .073/ .046/.042/.092/.012/.033/.009
1995	.647/ .069/ .046/.042/.138/.017/.033/.009

Each table presents emission factors for the 30 combinatons discussed above for the six calendar years between 1975 and 1995. The table entries were calculated using the techniques described and data presented in this document. Examination of the tables indicate the sensitivity of the emission factors to various conditions. A user who has specific data on the input factors should calculate a emission factor to fit the exact scenario. When specific input factor data are not available, however, it is hoped that the range of values presented in the tables will cover the majority of applications. The user should be sure that the appropriate scenario is chosen to fit the situation under analysis.

TABLE G-1

LOW ALTITUDE NON-CALIFORNIA

G-3

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

HC EMISSION FACTORS (GRAMS/MILE) AT 5.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	21.58	20.38	19.30	18.60	19.10
1975	0.0	27.3	0.0	21.85	20.86	19.98	19.44	20.25
1975	0.0	100.0	0.0	22.93	22.75	22.72	22.77	24.85
1975	20.6	0.0	20.6	37.82	28.87	23.36	20.75	20.57
1975	20.6	27.3	20.6	39.61	30.15	24.43	21.80	21.90
1975	100.0	0.0	100.0	129.37	76.78	46.26	32.86	28.95
1980	0.0	0.0	0.0	15.31	13.92	12.76	12.06	13.37
1980	0.0	27.3	0.0	15.17	14.06	13.14	12.59	14.14
1980	0.0	100.0	0.0	14.91	14.85	14.89	14.97	17.51
1980	20.6	0.0	20.6	27.31	20.19	15.81	13.74	14.45
1980	20.6	27.3	20.6	28.33	20.94	16.50	14.47	15.36
1980	100.0	0.0	100.0	97.30	56.87	33.74	23.70	20.96
1982	0.0	0.0	0.0	13.19	11.71	10.49	9.76	11.31
1982	0.0	27.3	0.0	12.89	11.68	10.70	10.12	11.82
1982	0.0	100.0	0.0	12.03	11.89	11.82	11.82	14.20
1982	20.6	0.0	20.6	22.97	16.77	12.93	11.11	12.10
1982	20.6	27.3	20.6	23.61	17.24	13.39	11.62	12.72
1982	100.0	0.0	100.0	80.52	46.70	27.49	19.23	17.07
1987	0.0	0.0	0.0	8.59	7.36	6.35	5.75	6.92
1987	0.0	27.3	0.0	8.35	7.31	6.45	5.94	7.16
1987	0.0	100.0	0.0	7.78	7.43	7.13	6.94	8.47
1987	20.6	0.0	20.6	14.14	10.13	7.63	6.43	7.32
1987	20.6	27.3	20.6	14.44	10.36	7.87	6.70	7.62
1987	100.0	0.0	100.0	47.34	26.84	15.46	10.66	9.98
1990	0.0	0.0	0.0	6.43	5.52	4.77	4.32	4.96
1990	0.0	27.3	0.0	6.38	5.58	4.91	4.50	5.20
1990	0.0	100.0	0.0	6.51	6.08	5.69	5.45	6.43
1990	20.6	0.0	20.6	10.22	7.36	5.58	4.72	5.26
1990	20.6	27.3	20.6	10.55	7.61	5.81	4.96	5.55
1990	100.0	0.0	100.0	32.84	18.47	10.58	7.28	7.25
1995	0.0	0.0	0.0	4.68	4.08	3.57	3.26	3.43
1995	0.0	27.3	0.0	4.81	4.24	3.75	3.46	3.69
1995	0.0	100.0	0.0	5.57	5.10	4.69	4.43	4.96
1995	20.6	0.0	20.6	7.11	5.21	4.03	3.45	3.66
1995	20.6	27.3	20.6	7.49	5.50	4.28	3.69	3.98
1995	100.0	0.0	100.0	21.68	12.09	6.91	4.77	5.22

TABLE G-1 : HC AT 5.0 MPH.

TABLE G-2

G-4

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

HC EMISSION FACTORS (GRAMS/MILE) AT 10.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	12.80	12.11	11.49	11.10	11.36
1975	0.0	27.3	0.0	12.94	12.36	11.85	11.53	11.96
1975	0.0	100.0	0.0	13.50	13.33	13.25	13.24	14.32
1975	20.6	0.0	20.6	21.25	16.53	13.60	12.21	12.13
1975	20.6	27.3	20.6	22.19	17.19	14.16	12.75	12.81
1975	100.0	0.0	100.0	68.85	41.43	25.50	18.49	16.46
1980	0.0	0.0	0.0	8.96	8.19	7.54	7.14	7.85
1980	0.0	27.3	0.0	8.88	8.25	7.73	7.42	8.25
1980	0.0	100.0	0.0	8.74	8.66	8.63	8.64	9.98
1980	20.6	0.0	20.6	15.22	11.46	9.13	8.02	8.41
1980	20.6	27.3	20.6	15.75	11.84	9.48	8.40	8.88
1980	100.0	0.0	100.0	51.70	30.56	18.47	13.21	11.79
1982	0.0	0.0	0.0	7.67	6.85	6.18	5.77	6.61
1982	0.0	27.3	0.0	7.50	6.83	6.28	5.96	6.87
1982	0.0	100.0	0.0	7.04	6.93	6.86	6.84	8.10
1982	20.6	0.0	20.6	12.79	9.50	7.46	6.48	7.02
1982	20.6	27.3	20.6	13.12	9.74	7.69	6.74	7.34
1982	100.0	0.0	100.0	42.93	25.17	15.08	10.73	9.61
1987	0.0	0.0	0.0	4.92	4.25	3.70	3.37	4.01
1987	0.0	27.3	0.0	4.80	4.22	3.75	3.47	4.13
1987	0.0	100.0	0.0	4.49	4.29	4.11	4.00	4.82
1987	20.6	0.0	20.6	7.87	5.72	4.38	3.73	4.22
1987	20.6	27.3	20.6	8.03	5.84	4.51	3.88	4.38
1987	100.0	0.0	100.0	25.45	14.57	8.53	5.98	5.63
1990	0.0	0.0	0.0	3.70	3.20	2.78	2.54	2.89
1990	0.0	27.3	0.0	3.67	3.23	2.86	2.64	3.02
1990	0.0	100.0	0.0	3.74	3.50	3.28	3.14	3.67
1990	20.6	0.0	20.6	5.72	4.18	3.22	2.75	3.05
1990	20.6	27.3	20.6	5.89	4.31	3.34	2.88	3.21
1990	100.0	0.0	100.0	17.80	10.12	5.90	4.13	4.12
1995	0.0	0.0	0.0	2.72	2.39	2.10	1.93	2.03
1995	0.0	27.3	0.0	2.79	2.47	2.20	2.04	2.17
1995	0.0	100.0	0.0	3.20	2.94	2.71	2.56	2.85
1995	20.6	0.0	20.6	4.03	3.00	2.35	2.04	2.16
1995	20.6	27.3	20.6	4.23	3.15	2.49	2.17	2.33
1995	100.0	0.0	100.0	11.84	6.70	3.91	2.77	3.01

TABLE G-2 : HC AT 10.0 MPH.

TABLE G-3

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

HC EMISSION FACTORS (GRAMS/MILE) AT 19.6 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	8.07	7.70	7.36	7.15	7.30
1975	0.0	27.3	0.0	8.15	7.84	7.56	7.39	7.62
1975	0.0	100.0	0.0	8.46	8.38	8.34	8.34	8.93
1975	20.6	0.0	20.6	12.82	10.18	8.55	7.78	7.72
1975	20.6	27.3	20.6	13.34	10.55	8.86	8.08	8.10
1975	100.0	0.0	100.0	39.52	24.14	15.22	11.29	10.13
1980	0.0	0.0	0.0	5.53	5.09	4.73	4.51	4.92
1980	0.0	27.3	0.0	5.48	5.13	4.84	4.67	5.14
1980	0.0	100.0	0.0	5.40	5.35	5.34	5.35	6.10
1980	20.6	0.0	20.6	9.07	6.95	5.63	5.01	5.23
1980	20.6	27.3	20.6	9.37	7.16	5.83	5.22	5.49
1980	100.0	0.0	100.0	29.70	17.74	10.91	7.94	7.12
1982	0.0	0.0	0.0	4.70	4.23	3.85	3.62	4.11
1982	0.0	27.3	0.0	4.60	4.22	3.91	3.73	4.25
1982	0.0	100.0	0.0	4.33	4.27	4.23	4.22	4.94
1982	20.6	0.0	20.6	7.62	5.75	4.58	4.03	4.34
1982	20.6	27.3	20.6	7.80	5.88	4.71	4.17	4.52
1982	100.0	0.0	100.0	24.79	14.66	8.92	6.45	5.80
1987	0.0	0.0	0.0	2.97	2.58	2.27	2.08	2.45
1987	0.0	27.3	0.0	2.90	2.57	2.30	2.14	2.52
1987	0.0	100.0	0.0	2.72	2.60	2.50	2.44	2.91
1987	20.6	0.0	20.6	4.67	3.43	2.66	2.29	2.57
1987	20.6	27.3	20.6	4.76	3.50	2.73	2.37	2.66
1987	100.0	0.0	100.0	14.84	8.55	5.06	3.59	3.38
1990	0.0	0.0	0.0	2.22	1.94	1.70	1.56	1.76
1990	0.0	27.3	0.0	2.21	1.96	1.74	1.62	1.83
1990	0.0	100.0	0.0	2.25	2.11	1.99	1.91	2.22
1990	20.6	0.0	20.6	3.40	2.51	1.95	1.68	1.85
1990	20.6	27.3	20.6	3.51	2.59	2.03	1.76	1.95
1990	100.0	0.0	100.0	10.45	5.98	3.52	2.49	2.48
1995	0.0	0.0	0.0	1.64	1.45	1.28	1.19	1.24
1995	0.0	27.3	0.0	1.68	1.50	1.34	1.25	1.32
1995	0.0	100.0	0.0	1.92	1.77	1.64	1.56	1.72
1995	20.6	0.0	20.6	2.40	1.80	1.43	1.25	1.32
1995	20.6	27.3	20.6	2.52	1.89	1.51	1.33	1.42
1995	100.0	0.0	100.0	6.98	3.97	2.35	1.68	1.82

TABLE G-3 : HC AT 19.6 MPH.

TABLE G-4

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

HC EMISSION FACTORS (GRAMS/MILE) AT 35.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	5.73	5.52	5.33	5.21	5.29
1975	0.0	27.3	0.0	5.78	5.60	5.45	5.35	5.49
1975	0.0	100.0	0.0	5.97	5.94	5.92	5.92	6.28
1975	20.6	0.0	20.6	8.70	7.07	6.07	5.60	5.55
1975	20.6	27.3	20.6	9.03	7.30	6.26	5.78	5.78
1975	100.0	0.0	100.0	25.33	15.76	10.21	7.77	7.03
1980	0.0	0.0	0.0	3.64	3.40	3.21	3.09	3.31
1980	0.0	27.3	0.0	3.61	3.43	3.27	3.18	3.44
1980	0.0	100.0	0.0	3.57	3.56	3.56	3.57	3.99
1980	20.6	0.0	20.6	5.70	4.48	3.73	3.38	3.49
1980	20.6	27.3	20.6	5.88	4.61	3.85	3.50	3.64
1980	100.0	0.0	100.0	17.65	10.74	6.78	5.07	4.59
1982	0.0	0.0	0.0	2.98	2.74	2.53	2.41	2.67
1982	0.0	27.3	0.0	2.93	2.73	2.57	2.47	2.75
1982	0.0	100.0	0.0	2.79	2.76	2.75	2.75	3.14
1982	20.6	0.0	20.6	4.65	3.60	2.95	2.64	2.80
1982	20.6	27.3	20.6	4.76	3.68	3.02	2.72	2.90
1982	100.0	0.0	100.0	14.38	8.66	5.41	4.01	3.63
1987	0.0	0.0	0.0	1.76	1.55	1.38	1.29	1.48
1987	0.0	27.3	0.0	1.72	1.54	1.40	1.32	1.52
1987	0.0	100.0	0.0	1.62	1.57	1.51	1.48	1.74
1987	20.6	0.0	20.6	2.69	2.02	1.60	1.40	1.55
1987	20.6	27.3	20.6	2.74	2.06	1.64	1.44	1.60
1987	100.0	0.0	100.0	8.26	4.82	2.92	2.11	1.99
1990	0.0	0.0	0.0	1.29	1.14	1.02	0.94	1.05
1990	0.0	27.3	0.0	1.28	1.15	1.04	0.97	1.09
1990	0.0	100.0	0.0	1.31	1.24	1.17	1.13	1.30
1990	20.6	0.0	20.6	1.94	1.46	1.16	1.01	1.10
1990	20.6	27.3	20.6	2.00	1.50	1.20	1.05	1.15
1990	100.0	0.0	100.0	5.80	3.36	2.02	1.45	1.45
1995	0.0	0.0	0.0	0.94	0.84	0.76	0.71	0.73
1995	0.0	27.3	0.0	0.96	0.87	0.79	0.74	0.78
1995	0.0	100.0	0.0	1.09	1.02	0.95	0.91	1.00
1995	20.6	0.0	20.6	1.36	1.04	0.84	0.74	0.78
1995	20.6	27.3	20.6	1.42	1.09	0.88	0.78	0.83
1995	100.0	0.0	100.0	3.85	2.22	1.34	0.98	1.05

TABLE G-4 : HC AT 35.0 MPH.

TABLE G-5

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

HC EMISSION FACTORS (GRAMS/MILE) AT 50.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	4.99	4.83	4.69	4.59	4.66
1975	0.0	27.3	0.0	5.03	4.90	4.78	4.71	4.81
1975	0.0	100.0	0.0	5.19	5.17	5.16	5.16	5.44
1975	20.6	0.0	20.6	7.39	6.09	5.28	4.90	4.87
1975	20.6	27.3	20.6	7.65	6.27	5.43	5.05	5.05
1975	100.0	0.0	100.0	20.76	13.07	8.61	6.65	6.04
1980	0.0	0.0	0.0	3.08	2.90	2.75	2.67	2.83
1980	0.0	27.3	0.0	3.06	2.92	2.80	2.73	2.93
1980	0.0	100.0	0.0	3.03	3.02	3.03	3.03	3.36
1980	20.6	0.0	20.6	4.70	3.75	3.16	2.89	2.97
1980	20.6	27.3	20.6	4.84	3.85	3.25	2.98	3.09
1980	100.0	0.0	100.0	14.05	8.64	5.55	4.21	3.82
1982	0.0	0.0	0.0	2.49	2.30	2.15	2.05	2.25
1982	0.0	27.3	0.0	2.45	2.30	2.17	2.10	2.32
1982	0.0	100.0	0.0	2.34	2.32	2.31	2.31	2.61
1982	20.6	0.0	20.6	3.79	2.97	2.47	2.23	2.36
1982	20.6	27.3	20.6	3.87	3.03	2.53	2.30	2.43
1982	100.0	0.0	100.0	11.35	6.90	4.38	3.29	3.00
1987	0.0	0.0	0.0	1.42	1.26	1.13	1.06	1.21
1987	0.0	27.3	0.0	1.39	1.25	1.15	1.08	1.24
1987	0.0	100.0	0.0	1.31	1.27	1.23	1.21	1.40
1987	20.6	0.0	20.6	2.14	1.62	1.30	1.15	1.26
1987	20.6	27.3	20.6	2.17	1.65	1.33	1.18	1.30
1987	100.0	0.0	100.0	6.41	3.77	2.31	1.69	1.60
1990	0.0	0.0	0.0	1.03	0.92	0.82	0.76	0.84
1990	0.0	27.3	0.0	1.02	0.92	0.84	0.79	0.88
1990	0.0	100.0	0.0	1.04	0.99	0.94	0.91	1.04
1990	20.6	0.0	20.6	1.53	1.16	0.93	0.82	0.89
1990	20.6	27.3	20.6	1.57	1.19	0.96	0.85	0.92
1990	100.0	0.0	100.0	4.51	2.63	1.59	1.16	1.15
1995	0.0	0.0	0.0	0.74	0.67	0.60	0.57	0.59
1995	0.0	27.3	0.0	0.76	0.69	0.63	0.59	0.62
1995	0.0	100.0	0.0	0.86	0.80	0.75	0.72	0.79
1995	20.6	0.0	20.6	1.07	0.82	0.67	0.59	0.62
1995	20.6	27.3	20.6	1.12	0.86	0.70	0.63	0.66
1995	100.0	0.0	100.0	2.99	1.73	1.06	0.78	0.83

TABLE G-5 : HC AT 50.0 MPH.

TABLE G-6

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

HC EMISSION FACTORS (GRAMS/MILE) AT 55.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	4.87	4.72	4.58	4.49	4.55
1975	0.0	27.3	0.0	4.91	4.78	4.67	4.60	4.70
1975	0.0	100.0	0.0	5.06	5.03	5.02	5.02	5.29
1975	20.6	0.0	20.6	7.16	5.91	5.15	4.79	4.75
1975	20.6	27.3	20.6	7.41	6.09	5.29	4.92	4.92
1975	100.0	0.0	100.0	19.89	12.57	8.31	6.44	5.87
1980	0.0	0.0	0.0	2.96	2.79	2.66	2.58	2.73
1980	0.0	27.3	0.0	2.94	2.81	2.70	2.64	2.82
1980	0.0	100.0	0.0	2.92	2.91	2.91	2.92	3.21
1980	20.6	0.0	20.6	4.47	3.58	3.04	2.79	2.86
1980	20.6	27.3	20.6	4.59	3.68	3.12	2.87	2.97
1980	100.0	0.0	100.0	13.16	8.13	5.25	4.01	3.65
1982	0.0	0.0	0.0	2.37	2.20	2.06	1.97	2.15
1982	0.0	27.3	0.0	2.34	2.20	2.08	2.02	2.21
1982	0.0	100.0	0.0	2.24	2.22	2.21	2.21	2.49
1982	20.6	0.0	20.6	3.57	2.82	2.36	2.14	2.25
1982	20.6	27.3	20.6	3.65	2.88	2.41	2.20	2.32
1982	100.0	0.0	100.0	10.54	6.44	4.11	3.11	2.84
1987	0.0	0.0	0.0	1.32	1.18	1.07	1.00	1.13
1987	0.0	27.3	0.0	1.30	1.18	1.08	1.02	1.16
1987	0.0	100.0	0.0	1.23	1.19	1.16	1.14	1.31
1987	20.6	0.0	20.6	1.98	1.51	1.22	1.08	1.18
1987	20.6	27.3	20.6	2.01	1.54	1.25	1.11	1.22
1987	100.0	0.0	100.0	5.86	3.46	2.14	1.58	1.49
1990	0.0	0.0	0.0	0.96	0.85	0.77	0.72	0.79
1990	0.0	27.3	0.0	0.95	0.86	0.79	0.74	0.82
1990	0.0	100.0	0.0	0.97	0.92	0.88	0.85	0.97
1990	20.6	0.0	20.6	1.41	1.08	0.87	0.77	0.83
1990	20.6	27.3	20.6	1.45	1.11	0.90	0.80	0.86
1990	100.0	0.0	100.0	4.11	2.41	1.47	1.08	1.07
1995	0.0	0.0	0.0	0.69	0.62	0.57	0.53	0.55
1995	0.0	27.3	0.0	0.71	0.64	0.59	0.55	0.58
1995	0.0	100.0	0.0	0.80	0.75	0.70	0.67	0.73
1995	20.6	0.0	20.6	0.98	0.76	0.62	0.56	0.58
1995	20.6	27.3	20.6	1.03	0.79	0.65	0.58	0.62
1995	100.0	0.0	100.0	2.72	1.59	0.98	0.72	0.77

TABLE G-6 : HC AT 55.0 MPH.

TABLE G-7

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

CO EMISSION FACTORS (GRAMS/MILE) AT 5.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	257.35	245.74	235.83	229.79	280.63
1975	0.0	27.3	0.0	252.86	244.96	238.74	235.29	292.60
1975	0.0	100.0	0.0	231.33	239.60	249.37	257.15	341.21
1975	20.6	0.0	20.6	452.76	357.02	295.40	265.48	294.92
1975	20.6	27.3	20.6	469.38	367.94	304.40	274.59	308.36
1975	100.0	0.0	100.0	1634.83	1028.01	653.29	479.20	378.68
1980	0.0	0.0	0.0	208.70	188.34	171.35	161.14	230.99
1980	0.0	27.3	0.0	197.97	182.33	169.58	162.14	231.06
1980	0.0	100.0	0.0	158.72	161.50	165.52	169.12	237.69
1980	20.6	0.0	20.6	384.68	282.55	219.13	188.97	238.94
1980	20.6	27.3	20.6	390.65	285.37	221.80	192.58	239.58
1980	100.0	0.0	100.0	1431.17	844.81	505.62	356.62	291.54
1982	0.0	0.0	0.0	184.42	162.44	144.41	133.73	201.92
1982	0.0	27.3	0.0	172.27	155.06	141.12	132.99	197.91
1982	0.0	100.0	0.0	129.91	130.62	132.22	133.92	189.77
1982	20.6	0.0	20.6	330.73	239.36	182.70	155.75	206.29
1982	20.6	27.3	20.6	331.75	238.84	182.81	156.99	202.46
1982	100.0	0.0	100.0	1194.73	696.20	412.00	288.77	239.50
1987	0.0	0.0	0.0	140.08	112.90	92.25	80.77	124.02
1987	0.0	27.3	0.0	127.56	105.75	89.12	79.84	119.39
1987	0.0	100.0	0.0	87.21	84.41	82.02	80.59	108.56
1987	20.6	0.0	20.6	220.14	154.93	113.39	93.23	125.81
1987	20.6	27.3	20.6	214.00	151.16	112.03	93.44	121.28
1987	100.0	0.0	100.0	687.42	402.60	239.78	168.99	143.54
1990	0.0	0.0	0.0	124.98	95.25	73.43	61.67	88.07
1990	0.0	27.3	0.0	113.29	89.29	71.54	61.89	86.04
1990	0.0	100.0	0.0	76.47	72.60	69.06	66.78	84.00
1990	20.6	0.0	20.6	179.26	124.77	89.07	71.44	90.76
1990	20.6	27.3	20.6	171.72	121.17	88.55	72.62	89.04
1990	100.0	0.0	100.0	497.65	299.77	183.16	131.09	112.08
1995	0.0	0.0	0.0	110.71	80.71	59.29	48.04	60.34
1995	0.0	27.3	0.0	100.43	76.16	58.66	49.36	60.90
1995	0.0	100.0	0.0	68.84	64.57	60.64	58.05	67.60
1995	20.6	0.0	20.6	145.78	101.05	70.94	55.85	63.99
1995	20.6	27.3	20.6	138.06	98.13	71.40	58.02	65.06
1995	100.0	0.0	100.0	353.07	222.47	141.39	103.60	89.17

TABLE G-7 : CO AT 5.0 MPH.

TABLE G-8

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

CO EMISSION FACTORS (GRAMS/MILE) AT 10.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	133.04	127.01	121.86	118.72	144.45
1975	0.0	27.3	0.0	131.00	126.73	123.32	121.40	150.30
1975	0.0	100.0	0.0	121.14	124.51	128.65	132.03	174.00
1975	20.6	0.0	20.6	227.92	181.14	150.88	136.10	151.44
1975	20.6	27.3	20.6	236.07	186.51	155.28	140.52	158.00
1975	100.0	0.0	100.0	800.31	506.57	324.65	239.87	192.30
1980	0.0	0.0	0.0	110.15	99.24	90.12	84.63	121.24
1980	0.0	27.3	0.0	104.79	96.24	89.23	85.11	121.14
1980	0.0	100.0	0.0	85.38	86.01	87.29	88.60	124.05
1980	20.6	0.0	20.6	198.35	146.35	113.98	98.52	125.18
1980	20.6	27.3	20.6	201.27	147.74	115.30	100.30	125.37
1980	100.0	0.0	100.0	721.40	426.82	256.73	182.09	151.37
1982	0.0	0.0	0.0	98.65	86.86	77.17	71.41	107.60
1982	0.0	27.3	0.0	92.45	83.10	75.48	71.01	105.43
1982	0.0	100.0	0.0	71.02	70.77	71.00	71.46	100.87
1982	20.6	0.0	20.6	172.89	125.79	96.52	82.54	109.77
1982	20.6	27.3	20.6	173.30	125.47	96.54	83.14	107.68
1982	100.0	0.0	100.0	610.19	356.52	212.18	149.68	126.40
1987	0.0	0.0	0.0	76.18	61.64	50.58	44.41	67.78
1987	0.0	27.3	0.0	69.62	57.90	48.95	43.93	65.34
1987	0.0	100.0	0.0	48.53	46.80	45.29	44.37	59.62
1987	20.6	0.0	20.6	117.89	83.52	61.58	50.91	68.71
1987	20.6	27.3	20.6	114.63	81.54	60.87	51.02	66.32
1987	100.0	0.0	100.0	361.07	212.34	127.35	90.39	77.97
1990	0.0	0.0	0.0	67.76	51.90	40.25	33.96	48.25
1990	0.0	27.3	0.0	61.60	48.77	39.26	34.08	47.17
1990	0.0	100.0	0.0	42.25	40.04	38.01	36.71	46.12
1990	20.6	0.0	20.6	96.23	67.39	48.46	39.09	49.67
1990	20.6	27.3	20.6	92.25	65.50	48.20	39.73	48.76
1990	100.0	0.0	100.0	263.20	159.19	97.86	70.45	60.93
1995	0.0	0.0	0.0	59.88	43.89	32.46	26.44	33.10
1995	0.0	27.3	0.0	54.45	41.50	32.13	27.15	33.41
1995	0.0	100.0	0.0	37.80	35.42	33.23	31.80	37.00
1995	20.6	0.0	20.6	78.40	54.64	38.62	30.58	35.04
1995	20.6	27.3	20.6	74.33	53.11	38.87	31.74	35.62
1995	100.0	0.0	100.0	187.89	118.82	75.90	55.87	48.43

TABLE G-8 : CO AT 10.0 MPH.

TABLE G-9

G-11

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

CO EMISSION FACTORS (GRAMS/MILE) AT 19.6 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	69.61	66.64	64.13	62.60	75.79
1975	0.0	27.3	0.0	68.66	66.57	64.91	64.00	78.83
1975	0.0	100.0	0.0	64.05	65.73	67.82	69.53	91.11
1975	20.6	0.0	20.6	118.51	94.62	79.15	71.60	79.45
1975	20.6	27.3	20.6	122.77	97.43	81.44	73.88	82.86
1975	100.0	0.0	100.0	412.33	262.08	168.75	125.11	100.77
1980	0.0	0.0	0.0	60.61	54.29	49.03	45.88	66.60
1980	0.0	27.3	0.0	57.56	52.58	48.51	46.12	66.35
1980	0.0	100.0	0.0	46.76	46.95	47.48	48.07	67.41
1980	20.6	0.0	20.6	110.60	80.86	62.44	53.69	68.77
1980	20.6	27.3	20.6	112.15	81.58	63.14	54.65	68.68
1980	100.0	0.0	100.0	405.57	238.28	142.33	100.48	83.38
1982	0.0	0.0	0.0	55.88	48.82	43.04	39.63	60.68
1982	0.0	27.3	0.0	52.20	46.58	42.02	39.35	59.22
1982	0.0	100.0	0.0	39.70	39.44	39.42	39.56	55.99
1982	20.6	0.0	20.6	99.19	71.42	54.23	46.06	61.87
1982	20.6	27.3	20.6	99.29	71.15	54.19	46.36	60.46
1982	100.0	0.0	100.0	353.15	204.79	120.91	84.78	71.29
1987	0.0	0.0	0.0	45.94	36.87	29.99	26.16	40.30
1987	0.0	27.3	0.0	41.84	34.54	28.97	25.86	38.75
1987	0.0	100.0	0.0	28.75	27.68	26.73	26.15	35.10
1987	20.6	0.0	20.6	71.57	50.30	36.74	30.15	40.86
1987	20.6	27.3	20.6	69.49	49.04	36.29	30.22	39.34
1987	100.0	0.0	100.0	220.79	129.24	77.04	54.39	46.54
1990	0.0	0.0	0.0	41.60	31.67	24.39	20.47	29.20
1990	0.0	27.3	0.0	37.73	29.71	23.78	20.55	28.52
1990	0.0	100.0	0.0	25.59	24.24	23.01	22.20	27.84
1990	20.6	0.0	20.6	59.32	41.31	29.51	23.67	30.09
1990	20.6	27.3	20.6	56.79	40.11	29.33	24.07	29.51
1990	100.0	0.0	100.0	163.13	98.38	60.23	43.20	37.11
1995	0.0	0.0	0.0	37.21	27.16	19.99	16.22	20.33
1995	0.0	27.3	0.0	33.77	25.64	19.78	16.66	20.52
1995	0.0	100.0	0.0	23.24	21.79	20.45	19.57	22.76
1995	20.6	0.0	20.6	48.87	33.93	23.87	18.82	21.55
1995	20.6	27.3	20.6	46.29	32.95	24.02	19.55	21.91
1995	100.0	0.0	100.0	117.78	74.32	47.33	34.74	29.97

TABLE G-9 : CO AT 19.6 MPH.

TABLE G-10

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

CO EMISSION FACTORS (GRAMS/MILE) AT 35.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	40.16	38.62	37.33	36.55	43.86
1975	0.0	27.3	0.0	39.70	38.63	37.81	37.36	45.62
1975	0.0	100.0	0.0	37.42	38.38	39.56	40.52	52.72
1975	20.6	0.0	20.6	68.10	54.66	45.96	41.72	45.97
1975	20.6	27.3	20.6	70.59	56.32	47.30	43.03	47.95
1975	100.0	0.0	100.0	235.14	150.19	97.18	72.30	58.22
1980	0.0	0.0	0.0	33.79	30.31	27.41	25.68	37.12
1980	0.0	27.3	0.0	32.12	29.38	27.14	25.82	37.00
1980	0.0	100.0	0.0	26.25	26.34	26.62	26.92	37.64
1980	20.6	0.0	20.6	61.56	45.08	34.87	30.03	38.33
1980	20.6	27.3	20.6	62.44	45.50	35.28	30.57	38.30
1980	100.0	0.0	100.0	225.19	132.46	79.24	56.01	46.46
1982	0.0	0.0	0.0	31.03	27.12	23.93	22.04	33.69
1982	0.0	27.3	0.0	29.01	25.90	23.37	21.89	32.88
1982	0.0	100.0	0.0	22.14	21.98	21.95	22.02	31.10
1982	20.6	0.0	20.6	55.04	39.66	30.14	25.61	34.35
1982	20.6	27.3	20.6	55.11	39.51	30.12	25.78	33.57
1982	100.0	0.0	100.0	195.68	113.53	67.07	47.06	39.57
1987	0.0	0.0	0.0	25.54	20.50	16.67	14.54	22.39
1987	0.0	27.3	0.0	23.27	19.20	16.10	14.37	21.53
1987	0.0	100.0	0.0	15.99	15.39	14.86	14.53	19.50
1987	20.6	0.0	20.6	39.80	27.96	20.42	16.76	22.70
1987	20.6	27.3	20.6	38.64	27.26	20.17	16.79	21.86
1987	100.0	0.0	100.0	122.73	71.83	42.82	30.23	25.85
1990	0.0	0.0	0.0	23.13	17.60	13.56	11.37	16.23
1990	0.0	27.3	0.0	20.97	16.51	13.21	11.42	15.85
1990	0.0	100.0	0.0	14.23	13.48	12.79	12.34	15.46
1990	20.6	0.0	20.6	32.97	22.96	16.39	13.15	16.71
1990	20.6	27.3	20.6	31.56	22.29	16.30	13.37	16.39
1990	100.0	0.0	100.0	90.60	54.63	33.45	23.99	20.62
1995	0.0	0.0	0.0	20.71	15.12	11.12	9.02	11.32
1995	0.0	27.3	0.0	18.80	14.27	11.01	9.27	11.42
1995	0.0	100.0	0.0	12.93	12.13	11.38	10.89	12.67
1995	20.6	0.0	20.6	27.20	18.88	13.28	10.47	11.99
1995	20.6	27.3	20.6	25.76	18.34	13.37	10.88	12.19
1995	100.0	0.0	100.0	65.54	41.35	26.33	19.33	16.68

TABLE G-10 : CO AT 35.0 MPH.

TABLE G-11

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

CO EMISSION FACTORS (GRAMS/MILE) AT 50.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	32.28	31.08	30.07	29.47	35.25
1975	0.0	27.3	0.0	31.98	31.12	30.46	30.09	36.61
1975	0.0	100.0	0.0	30.44	31.06	31.87	32.54	42.09
1975	20.6	0.0	20.6	53.69	43.40	36.72	33.45	36.89
1975	20.6	27.3	20.6	55.62	44.69	37.75	34.45	38.42
1975	100.0	0.0	100.0	181.14	116.48	75.97	56.88	46.37
1980	0.0	0.0	0.0	28.03	25.08	22.64	21.18	30.72
1980	0.0	27.3	0.0	26.68	24.33	22.41	21.28	30.57
1980	0.0	100.0	0.0	21.99	21.93	22.01	22.17	30.94
1980	20.6	0.0	20.6	50.52	37.01	28.65	24.68	31.69
1980	20.6	27.3	20.6	51.21	37.34	28.97	25.10	31.61
1980	100.0	0.0	100.0	182.60	107.37	64.32	45.57	38.21
1982	0.0	0.0	0.0	26.16	22.82	20.09	18.48	28.34
1982	0.0	27.3	0.0	24.47	21.80	19.63	18.35	27.63
1982	0.0	100.0	0.0	18.83	18.59	18.46	18.44	26.02
1982	20.6	0.0	20.6	45.92	33.11	25.18	21.40	28.86
1982	20.6	27.3	20.6	45.94	32.97	25.15	21.53	28.17
1982	100.0	0.0	100.0	161.38	93.60	55.37	38.94	33.09
1987	0.0	0.0	0.0	22.02	17.67	14.37	12.54	19.30
1987	0.0	27.3	0.0	20.08	16.57	13.89	12.40	18.56
1987	0.0	100.0	0.0	13.89	13.34	12.85	12.54	16.81
1987	20.6	0.0	20.6	34.08	23.99	17.55	14.42	19.56
1987	20.6	27.3	20.6	33.08	23.39	17.33	14.45	18.83
1987	100.0	0.0	100.0	104.22	61.06	36.48	25.81	22.23
1990	0.0	0.0	0.0	19.95	15.20	11.72	9.84	14.02
1990	0.0	27.3	0.0	18.11	14.27	11.42	9.88	13.70
1990	0.0	100.0	0.0	12.35	11.68	11.07	10.67	13.37
1990	20.6	0.0	20.6	28.33	19.76	14.13	11.35	14.44
1990	20.6	27.3	20.6	27.12	19.18	14.05	11.54	14.17
1990	100.0	0.0	100.0	77.34	46.70	28.65	20.59	17.77
1995	0.0	0.0	0.0	17.89	13.07	9.63	7.82	9.80
1995	0.0	27.3	0.0	16.24	12.35	9.53	8.03	9.89
1995	0.0	100.0	0.0	11.21	10.50	9.85	9.42	10.96
1995	20.6	0.0	20.6	23.44	16.30	11.48	9.06	10.39
1995	20.6	27.3	20.6	22.20	15.83	11.55	9.41	10.56
1995	100.0	0.0	100.0	56.27	35.54	22.66	16.65	14.40

TABLE G-11 : CO AT 50.0 MPH.

TABLE G-12

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

CO EMISSION FACTORS (GRAMS/MILE) AT 55.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	31.47	30.28	29.27	28.66	34.27
1975	0.0	27.3	0.0	31.20	30.33	29.63	29.25	35.55
1975	0.0	100.0	0.0	29.81	30.30	30.97	31.55	40.70
1975	20.6	0.0	20.6	51.54	41.84	35.51	32.40	35.81
1975	20.6	27.3	20.6	53.36	43.06	36.48	33.34	37.25
1975	100.0	0.0	100.0	170.91	110.34	72.32	54.37	44.72
1980	0.0	0.0	0.0	27.01	24.23	21.91	20.52	29.57
1980	0.0	27.3	0.0	25.78	23.55	21.71	20.62	29.45
1980	0.0	100.0	0.0	21.50	21.35	21.35	21.44	29.82
1980	20.6	0.0	20.6	47.67	35.20	27.44	23.74	30.46
1980	20.6	27.3	20.6	48.31	35.50	27.74	24.13	30.41
1980	100.0	0.0	100.0	168.95	99.86	60.24	42.94	36.47
1982	0.0	0.0	0.0	25.08	21.96	19.40	17.89	27.19
1982	0.0	27.3	0.0	23.54	21.03	18.98	17.77	26.55
1982	0.0	100.0	.0.0	18.40	18.10	17.91	17.85	25.10
1982	20.6	0.0	20.6	43.15	31.37	24.06	20.56	27.67
1982	20.6	27.3	20.6	43.17	31.25	24.03	20.68	27.05
1982	100.0	0.0	100.0	148.74	86.73	51.70	36.62	31.55
1987	0.0	0.0	0.0	20.70	16.71	13.68	11.98	18.31
1987	0.0	27.3	0.0	18.94	15.71	13.24	11.86	17.64
1987	0.0	100.0	0.0	13.32	12.78	12.29	11.99	16.06
1987	20.6	0.0	20.6	31.67	22.45	16.56	13.69	18.55
1987	20.6	27.3	20.6	30.76	21.91	16.37	13.72	17.90
1987	100.0	0.0	100.0	95.45	56.18	33.78	24.06	20.98
1990	0.0	0.0	0.0	18.56	14.22	11.02	9.30	13.20
1990	0.0	27.3	0.0	16.89	13.37	10.76	9.33	12.90
1990	0.0	100.0	0.0	11.67	11.03	10.44	10.06	12.61
1990	20.6	0.0	20.6	26.16	18.35	13.22	10.67	13.58
1990	20.6	27.3	20.6	25.07	17.83	13.14	10.85	13.33
1990	100.0	0.0	100.0	70.64	42.80	26.39	19.06	16.61
1995	0.0	0.0	0.0	16.53	12.14	8.99	7.33	9.17
1995	0.0	27.3	0.0	15.05	11.48	8.90	7.53	9.25
1995	0.0	100.0	0.0	10.49	9.82	9.20	8.80	10.23
1995	20.6	0.0	20.6	21.57	15.06	10.67	8.46	9.70
1995	20.6	27.3	20.6	20.45	14.64	10.74	8.78	9.86
1995	100.0	0.0	100.0	51.35	32.53	20.82	15.35	13.36

TABLE G-12 : CO AT 55.0 MPH.

TABLE G-13

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

NOX EMISSION FACTORS (GRAMS/MILE) AT 5.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	6.18	5.48	4.89	4.53	4.15
1975	0.0	27.3	0.0	6.76	5.99	5.34	4.95	4.48
1975	0.0	100.0	0.0	7.92	7.02	6.26	5.79	5.15
1975	20.6	0.0	20.6	6.12	5.56	5.09	4.81	4.47
1975	20.6	27.3	20.6	6.66	6.04	5.51	5.19	4.78
1975	100.0	0.0	100.0	5.67	5.64	5.63	5.63	5.45
1980	0.0	0.0	0.0	4.47	4.11	3.81	3.63	3.29
1980	0.0	27.3	0.0	4.81	4.43	4.10	3.90	3.51
1980	0.0	100.0	0.0	5.45	5.02	4.65	4.42	3.92
1980	20.6	0.0	20.6	4.58	4.26	4.00	3.84	3.48
1980	20.6	27.3	20.6	4.88	4.55	4.26	4.08	3.68
1980	100.0	0.0	100.0	4.75	4.59	4.47	4.41	4.01
1982	0.0	0.0	0.0	3.99	3.71	3.46	3.31	3.00
1982	0.0	27.3	0.0	4.26	3.96	3.69	3.53	3.17
1982	0.0	100.0	0.0	4.73	4.40	4.11	3.93	3.48
1982	20.6	0.0	20.6	4.14	3.86	3.63	3.49	3.14
1982	20.6	27.3	20.6	4.37	4.08	3.84	3.69	3.29
1982	100.0	0.0	100.0	4.44	4.23	4.06	3.97	3.53
1987	0.0	0.0	0.0	2.76	2.63	2.51	2.44	2.10
1987	0.0	27.3	0.0	2.97	2.82	2.68	2.60	2.23
1987	0.0	100.0	0.0	3.34	3.15	2.98	2.87	2.44
1987	20.6	0.0	20.6	2.90	2.76	2.64	2.57	2.19
1987	20.6	27.3	20.6	3.08	2.92	2.79	2.71	2.30
1987	100.0	0.0	100.0	3.22	3.08	2.98	2.92	2.43
1990	0.0	0.0	0.0	2.13	2.06	2.00	1.96	1.62
1990	0.0	27.3	0.0	2.35	2.25	2.17	2.12	1.74
1990	0.0	100.0	0.0	2.75	2.61	2.47	2.39	1.96
1990	20.6	0.0	20.6	2.24	2.17	2.12	2.08	1.70
1990	20.6	27.3	20.6	2.44	2.35	2.27	2.22	1.81
1990	100.0	0.0	100.0	2.52	2.47	2.43	2.41	1.92
1995	0.0	0.0	0.0	1.65	1.64	1.63	1.63	1.29
1995	0.0	27.3	0.0	1.89	1.85	1.81	1.79	1.41
1995	0.0	100.0	0.0	2.33	2.23	2.13	2.07	1.65
1995	20.6	0.0	20.6	1.75	1.75	1.75	1.75	1.37
1995	20.6	27.3	20.6	1.97	1.93	1.90	1.89	1.48
1995	100.0	0.0	100.0	2.02	2.03	2.05	2.07	1.60

TABLE G-13 : NOX AT 5.0 MPH.

TABLE G-14

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

NOX EMISSION FACTORS (GRAMS/MILE) AT 10.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	5.68	5.03	4.49	4.16	3.79
1975	0.0	27.3	0.0	6.23	5.52	4.92	4.55	4.10
1975	0.0	100.0	0.0	7.34	6.50	5.79	5.35	4.74
1975	20.6	0.0	20.6	5.62	5.11	4.68	4.42	4.09
1975	20.6	27.3	20.6	6.14	5.57	5.08	4.79	4.38
1975	100.0	0.0	100.0	5.23	5.21	5.20	5.20	5.00
1980	0.0	0.0	0.0	4.20	3.86	3.56	3.38	3.05
1980	0.0	27.3	0.0	4.53	4.17	3.85	3.65	3.27
1980	0.0	100.0	0.0	5.16	4.75	4.39	4.17	3.66
1980	20.6	0.0	20.6	4.31	4.00	3.75	3.59	3.24
1980	20.6	27.3	20.6	4.61	4.28	4.00	3.83	3.43
1980	100.0	0.0	100.0	4.50	4.34	4.22	4.16	3.75
1982	0.0	0.0	0.0	3.75	3.48	3.24	3.09	2.77
1982	0.0	27.3	0.0	4.02	3.72	3.46	3.31	2.94
1982	0.0	100.0	0.0	4.48	4.16	3.88	3.70	3.24
1982	20.6	0.0	20.6	3.90	3.63	3.40	3.27	2.91
1982	20.6	27.3	20.6	4.13	3.85	3.61	3.46	3.06
1982	100.0	0.0	100.0	4.21	4.00	3.84	3.74	3.29
1987	0.0	0.0	0.0	2.60	2.46	2.34	2.27	1.93
1987	0.0	27.3	0.0	2.81	2.65	2.51	2.43	2.06
1987	0.0	100.0	0.0	3.17	2.98	2.81	2.70	2.27
1987	20.6	0.0	20.6	2.73	2.59	2.47	2.40	2.02
1987	20.6	27.3	20.6	2.91	2.76	2.62	2.54	2.13
1987	100.0	0.0	100.0	3.05	2.92	2.81	2.75	2.25
1990	0.0	0.0	0.0	2.00	1.93	1.87	1.83	1.49
1990	0.0	27.3	0.0	2.22	2.12	2.04	1.99	1.61
1990	0.0	100.0	0.0	2.62	2.48	2.34	2.26	1.82
1990	20.6	0.0	20.6	2.11	2.04	1.99	1.96	1.57
1990	20.6	27.3	20.6	2.31	2.22	2.14	2.09	1.67
1990	100.0	0.0	100.0	2.39	2.34	2.30	2.28	1.78
1995	0.0	0.0	0.0	1.55	1.54	1.53	1.53	1.18
1995	0.0	27.3	0.0	1.78	1.74	1.70	1.68	1.30
1995	0.0	100.0	0.0	2.22	2.12	2.02	1.96	1.54
1995	20.6	0.0	20.6	1.65	1.64	1.64	1.64	1.26
1995	20.6	27.3	20.6	1.86	1.83	1.80	1.78	1.37
1995	100.0	0.0	100.0	1.90	1.92	1.94	1.96	1.48

TABLE G-14 : NOX AT 10.0 MPH.

TABLE G-15

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

NOX EMISSION FACTORS (GRAMS/MILE) AT 19.6 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	5.67	5.00	4.44	4.10	3.70
1975	0.0	27.3	0.0	6.25	5.51	4.89	4.51	4.03
1975	0.0	100.0	0.0	7.42	6.56	5.81	5.36	4.70
1975	20.6	0.0	20.6	5.62	5.09	4.64	4.37	4.01
1975	20.6	27.3	20.6	6.16	5.57	5.06	4.76	4.32
1975	100.0	0.0	100.0	5.22	5.20	5.19	5.19	4.96
1980	0.0	0.0	0.0	4.34	3.96	3.64	3.43	3.05
1980	0.0	27.3	0.0	4.71	4.31	3.96	3.74	3.30
1980	0.0	100.0	0.0	5.41	4.95	4.56	4.31	3.74
1980	20.6	0.0	20.6	4.48	4.14	3.85	3.67	3.26
1980	20.6	27.3	20.6	4.82	4.45	4.14	3.95	3.48
1980	100.0	0.0	100.0	4.73	4.54	4.40	4.32	3.83
1982	0.0	0.0	0.0	3.90	3.58	3.30	3.13	2.76
1982	0.0	27.3	0.0	4.20	3.86	3.57	3.38	2.96
1982	0.0	100.0	0.0	4.72	4.36	4.04	3.84	3.30
1982	20.6	0.0	20.6	4.08	3.77	3.50	3.34	2.92
1982	20.6	27.3	20.6	4.34	4.01	3.73	3.56	3.10
1982	100.0	0.0	100.0	4.46	4.21	4.01	3.90	3.36
1987	0.0	0.0	0.0	2.71	2.54	2.40	2.32	1.91
1987	0.0	27.3	0.0	2.96	2.77	2.61	2.51	2.06
1987	0.0	100.0	0.0	3.38	3.16	2.96	2.83	2.31
1987	20.6	0.0	20.6	2.87	2.70	2.56	2.48	2.02
1987	20.6	27.3	20.6	3.08	2.90	2.74	2.64	2.15
1987	100.0	0.0	100.0	3.25	3.09	2.96	2.89	2.29
1990	0.0	0.0	0.0	2.09	2.01	1.94	1.90	1.48
1990	0.0	27.3	0.0	2.36	2.24	2.14	2.08	1.62
1990	0.0	100.0	0.0	2.84	2.66	2.51	2.40	1.88
1990	20.6	0.0	20.6	2.23	2.15	2.08	2.04	1.58
1990	20.6	27.3	20.6	2.47	2.36	2.26	2.21	1.70
1990	100.0	0.0	100.0	2.56	2.49	2.44	2.42	1.82
1995	0.0	0.0	0.0	1.62	1.60	1.59	1.59	1.18
1995	0.0	27.3	0.0	1.89	1.85	1.80	1.77	1.32
1995	0.0	100.0	0.0	2.42	2.29	2.18	2.10	1.59
1995	20.6	0.0	20.6	1.73	1.73	1.73	1.73	1.27
1995	20.6	27.3	20.6	1.99	1.95	1.91	1.89	1.40
1995	100.0	0.0	100.0	2.03	2.05	2.07	2.09	1.52

TABLE G-15 : NOX AT 19.6 MPH.

TABLE G-16

G-18

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

NOX EMISSION FACTORS (GRAMS/MILE) AT 35.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	6.34	5.56	4.90	4.50	4.05
1975	0.0	27.3	0.0	7.01	6.15	5.43	4.98	4.43
1975	0.0	100.0	0.0	8.35	7.35	6.49	5.96	5.20
1975	20.6	0.0	20.6	6.27	5.66	5.14	4.83	4.41
1975	20.6	27.3	20.6	6.90	6.21	5.63	5.27	4.76
1975	100.0	0.0	100.0	5.80	5.78	5.77	5.78	5.51
1980	0.0	0.0	0.0	4.96	4.51	4.11	3.86	3.40
1980	0.0	27.3	0.0	5.41	4.92	4.50	4.23	3.69
1980	0.0	100.0	0.0	6.23	5.69	5.22	4.92	4.23
1980	20.6	0.0	20.6	5.15	4.73	4.37	4.16	3.65
1980	20.6	27.3	20.6	5.55	5.10	4.72	4.49	3.91
1980	100.0	0.0	100.0	5.48	5.23	5.04	4.94	4.34
1982	0.0	0.0	0.0	4.48	4.08	3.74	3.53	3.07
1982	0.0	27.3	0.0	4.85	4.43	4.07	3.84	3.31
1982	0.0	100.0	0.0	5.48	5.03	4.64	4.39	3.73
1982	20.6	0.0	20.6	4.71	4.32	3.99	3.79	3.27
1982	20.6	27.3	20.6	5.03	4.62	4.28	4.06	3.48
1982	100.0	0.0	100.0	5.21	4.89	4.62	4.48	3.80
1987	0.0	0.0	0.0	3.12	2.92	2.74	2.64	2.13
1987	0.0	27.3	0.0	3.44	3.21	3.00	2.87	2.31
1987	0.0	100.0	0.0	3.98	3.70	3.44	3.28	2.63
1987	20.6	0.0	20.6	3.33	3.12	2.94	2.84	2.26
1987	20.6	27.3	20.6	3.61	3.37	3.17	3.05	2.42
1987	100.0	0.0	100.0	3.82	3.61	3.45	3.36	2.60
1990	0.0	0.0	0.0	2.43	2.33	2.24	2.19	1.66
1990	0.0	27.3	0.0	2.77	2.63	2.50	2.42	1.84
1990	0.0	100.0	0.0	3.38	3.16	2.96	2.83	2.16
1990	20.6	0.0	20.6	2.60	2.50	2.42	2.37	1.78
1990	20.6	27.3	20.6	2.91	2.77	2.65	2.58	1.94
1990	100.0	0.0	100.0	3.02	2.94	2.88	2.85	2.09
1995	0.0	0.0	0.0	1.87	1.86	1.85	1.84	1.32
1995	0.0	27.3	0.0	2.23	2.17	2.12	2.08	1.50
1995	0.0	100.0	0.0	2.90	2.74	2.59	2.50	1.84
1995	20.6	0.0	20.6	2.02	2.02	2.02	2.02	1.44
1995	20.6	27.3	20.6	2.35	2.30	2.25	2.23	1.60
1995	100.0	0.0	100.0	2.39	2.41	2.45	2.48	1.75

TABLE G-16 : NOX AT 35.0 MPH.

TABLE G-17

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

NOX EMISSION FACTORS (GRAMS/MILE) AT 50.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	7.01	6.16	5.45	5.01	4.51
1975	0.0	27.3	0.0	7.74	6.81	6.02	5.53	4.93
1975	0.0	100.0	0.0	9.21	8.11	7.17	6.60	5.77
1975	20.6	0.0	20.6	6.94	6.27	5.70	5.36	4.91
1975	20.6	27.3	20.6	7.63	6.87	6.23	5.85	5.29
1975	100.0	0.0	100.0	6.43	6.40	6.39	6.40	6.10
1980	0.0	0.0	0.0	5.56	5.06	4.62	4.35	3.84
1980	0.0	27.3	0.0	6.06	5.52	5.05	4.76	4.16
1980	0.0	100.0	0.0	6.96	6.36	5.84	5.51	4.75
1980	20.6	0.0	20.6	5.77	5.30	4.91	4.67	4.11
1980	20.6	27.3	20.6	6.21	5.71	5.29	5.03	4.40
1980	100.0	0.0	100.0	6.14	5.87	5.65	5.54	4.87
1982	0.0	0.0	0.0	5.05	4.61	4.23	3.99	3.48
1982	0.0	27.3	0.0	5.45	4.99	4.58	4.33	3.74
1982	0.0	100.0	0.0	6.15	5.65	5.21	4.94	4.21
1982	20.6	0.0	20.6	5.30	4.87	4.50	4.28	3.70
1982	20.6	27.3	20.6	5.66	5.20	4.82	4.58	3.94
1982	100.0	0.0	100.0	5.86	5.50	5.21	5.04	4.29
1987	0.0	0.0	0.0	3.54	3.31	3.11	2.99	2.42
1987	0.0	27.3	0.0	3.89	3.63	3.40	3.26	2.63
1987	0.0	100.0	0.0	4.49	4.18	3.89	3.71	2.98
1987	20.6	0.0	20.6	3.77	3.53	3.34	3.22	2.57
1987	20.6	27.3	20.6	4.08	3.81	3.59	3.45	2.75
1987	100.0	0.0	100.0	4.31	4.08	3.90	3.80	2.95
1990	0.0	0.0	0.0	2.75	2.64	2.54	2.48	1.89
1990	0.0	27.3	0.0	3.13	2.97	2.83	2.74	2.09
1990	0.0	100.0	0.0	3.81	3.57	3.34	3.20	2.46
1990	20.6	0.0	20.6	2.95	2.83	2.74	2.69	2.02
1990	20.6	27.3	20.6	3.29	3.13	3.00	2.92	2.21
1990	100.0	0.0	100.0	3.41	3.32	3.26	3.22	2.37
1995	0.0	0.0	0.0	2.13	2.11	2.10	2.09	1.51
1995	0.0	27.3	0.0	2.53	2.46	2.40	2.36	1.71
1995	0.0	100.0	0.0	3.27	3.10	2.93	2.82	2.09
1995	20.6	0.0	20.6	2.29	2.29	2.29	2.29	1.64
1995	20.6	27.3	20.6	2.65	2.60	2.55	2.52	1.82
1995	100.0	0.0	100.0	2.70	2.73	2.77	2.81	1.99

TABLE G-17 : NOX AT 50.0 MPH.

TABLE G-18

LOW ALTITUDE NON-CALIFORNIA

SENSITIVITY OF THE MOBILE2 EMISSION FACTORS
TO VARIATIONS IN VEHICLE SPEED, AMBIENT TEMPERATURE,
AND COLD/HOT START VMT PERCENTAGES;
ON JANUARY 1 OF CALENDAR YEAR

NOX EMISSION FACTORS (GRAMS/MILE) AT 55.0 MPH

Cal. Year	Cold/Hot Start VMT Percentages PCCN	PCHC	PCCC	Combined Emission Factors for Eight Vehicle Types @ Ambient Temperature 0 F	25 F	50 F	75 F	100 F
1975	0.0	0.0	0.0	7.52	6.61	5.85	5.39	4.86
1975	0.0	27.3	0.0	8.29	7.30	6.46	5.94	5.30
1975	0.0	100.0	0.0	9.85	8.68	7.69	7.08	6.19
1975	20.6	0.0	20.6	7.44	6.73	6.13	5.76	5.28
1975	20.6	27.3	20.6	8.17	7.37	6.69	6.28	5.69
1975	100.0	0.0	100.0	6.89	6.86	6.86	6.86	6.55
1980	0.0	0.0	0.0	6.00	5.46	4.99	4.70	4.16
1980	0.0	27.3	0.0	6.53	5.95	5.45	5.14	4.50
1980	0.0	100.0	0.0	7.49	6.85	6.29	5.95	5.13
1980	20.6	0.0	20.6	6.22	5.72	5.30	5.05	4.46
1980	20.6	27.3	20.6	6.69	6.16	5.71	5.44	4.76
1980	100.0	0.0	100.0	6.63	6.33	6.10	5.98	5.27
1982	0.0	0.0	0.0	5.46	4.99	4.58	4.33	3.78
1982	0.0	27.3	0.0	5.89	5.39	4.96	4.69	4.06
1982	0.0	100.0	0.0	6.63	6.10	5.64	5.34	4.56
1982	20.6	0.0	20.6	5.74	5.27	4.88	4.64	4.02
1982	20.6	27.3	20.6	6.11	5.63	5.21	4.96	4.27
1982	100.0	0.0	100.0	6.34	5.95	5.63	5.45	4.65
1987	0.0	0.0	0.0	3.84	3.59	3.38	3.25	2.64
1987	0.0	27.3	0.0	4.22	3.94	3.69	3.54	2.86
1987	0.0	100.0	0.0	4.87	4.53	4.22	4.03	3.25
1987	20.6	0.0	20.6	4.09	3.83	3.62	3.50	2.80
1987	20.6	27.3	20.6	4.42	4.14	3.89	3.75	3.00
1987	100.0	0.0	100.0	4.68	4.43	4.23	4.13	3.21
1990	0.0	0.0	0.0	2.99	2.86	2.76	2.70	2.06
1990	0.0	27.3	0.0	3.40	3.23	3.08	2.98	2.28
1990	0.0	100.0	0.0	4.13	3.87	3.63	3.47	2.68
1990	20.6	0.0	20.6	3.20	3.08	2.98	2.92	2.21
1990	20.6	27.3	20.6	3.56	3.40	3.26	3.17	2.40
1990	100.0	0.0	100.0	3.70	3.60	3.53	3.50	2.58
1995	0.0	0.0	0.0	2.31	2.29	2.28	2.28	1.65
1995	0.0	27.3	0.0	2.74	2.67	2.60	2.56	1.87
1995	0.0	100.0	0.0	3.55	3.36	3.18	3.07	2.28
1995	20.6	0.0	20.6	2.49	2.48	2.49	2.49	1.79
1995	20.6	27.3	20.6	2.88	2.82	2.77	2.74	1.99
1995	100.0	0.0	100.0	2.93	2.97	3.01	3.05	2.17

TABLE G-18 : NOX AT 55.0 MPH.